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The way a metal combination generally works out in practice is well illustrated by the spelter "combine" of St. Louis, Mo., which has kept the price of spelter for some time at 3·75 cents per pound at St. Louis The outside smelters have supplied nearly the whole market with the metal at about 3·72½ cents, while the "combine" has had to export its product at 3·40 cents per pound. The outside producers are steadily increasing output and the "combine" as steadily reducing. How long will it take to "bust"?

The result of the low costs of producing iron and steel which have been reached in this country is further shown by the recent award to a Philadelphia concern of an important contract for steel bridges for Japan, which was secured in competition with the English and German makers, who have heretofore held this class of business entirely. We have been furnishing steel rails to Japan for a year or more past, and it is quite natural that the bridge business should follow. In this case it was probably the price which determined the letting of the contract altogether; for the Japanese are very close traders and buy always in the cheapest market, without regard to any national preferences. They are undoubtedly getting good quality in this case also, since our American bridge-builders have long held the highest rank all over the world both for the designs of their structures and the excellence of their execution. They are now taking precedence also in the low cost of their products and the present order may soon be followed by others from abroad. We have to note also an order for a steel building for Japan, which will be a pioneer in its line.

The meeting of the British Association for the Advancement of Science in August next is to be held in Toronto, and already preparations are being made for the reception of the visitors and for excursions to all parts of Canada. The members will be able to see almost any part of the Dominion and even to extend their trips to British Columbia, should they desire to do so. The meeting in Toronto will begin on August 18th, and invitations have been sent to the members of the American Association for the Advancement of Science—which will meet at Detroit on August 9th—to join in the proceedings of the Toronto meeting. It is expected that many will do so, and that the occasion will be really an international meeting. Advantage will be taken of the meeting to call especial attention to the resources of Canada, but it is probable that many of the members will extend their journey to this side of the line. Among the points to which special visits will be paid by the geological section of the association are included the nickel mines of the Sudbury District and the gold mines of Western Ontario, while the various mines of British Columbia will also claim some attention. A considerable number of members, it is said, have already given notice of their intention to attend the meeting, which promises to be in every way an interesting and successful one.

Competition—and perhaps over-production—have brought the coal trade of the Pittsburg District in Western Pennsylvania into a very bad condition. The river market, upon which so much of the trade depended, has been partly lost to other districts which are as well or better situated; and the Lake trade is no longer profitable owing to the sharp competition of the Ohio mines. For some time past the Pittsburg miners have been obliged to put up with a low rate; last fall they voluntarily accepted a reduction to a mining rate of 54 cents, realizing that to insist upon higher wages was to drive away trade and put themselves out of work altogether. At present, however, the district is in a very uneasy condition, and the relations between operators and miners are far from satisfactory. Efforts for compromise have been made, and in some cases have succeeded. Meantime the miners are in bad condition owing to low wages and short time, and the prospect for an improvement seems to be remote. The operators of part of the district, that section which especially supplies the river trade, hope for a little relief when the purchase by the United States of the property of the Monongahela Navigation Company shall be completed. The government will then take charge of the river improvements, and the tolls now charged on all coal coming through the Monongahela pools will be abolished. This will be a small matter, however, in comparison with the other difficulties which at present beset the operators. The committee appointed by the Pennsylvania legislature to investigate the coal trade is now taking evidence in Pittsburg, but nothing new has come out so far.

In our issue of January 30th we referred to a choice specimen of the English promoter's method of doing business, called the West Australian Gold District Trading Corporation, Limited, our chief object at the time being to draw attention to the absurd claims for their process for pulverizing quartz and extracting the gold. Further particulars as to their mode of doing business have since then come to our knowledge. This corporation was formed last summer to take over the business of a syndicate of a similar name. The capital of the corporation was £500,000, and that of the syndicate £20,000, but there was no business in hand to

justify this tremendous inflation of capital. The syndicate had only been in existence for three months, and its claims to large business connections in West Australia were quite false. At the end of the three months it declared a dividend at the rate of 100 per cent. per annum, of course with the object of creating a boom in the new corporation flotation; but the dividend was absolutely unearned, and money had to be borrowed in order to pay it. As the promoters held most of the £20,000 stock there was very little actual money to be paid over in order to represent this dividend. Though the syndicate announced in blazing language their wonderful business in West Australia, their sole transaction appears to have been the ordering by their Perth manager of a considerable amount of galvanized iron, which he stated was in great demand out there at advanced prices. The directors accordingly shipped 400 tons (if not more) to Perth, but on its arrival it was not sold and has, so far as we can ascertain, never been sold to this date. On the strength of this order the directors proceeded to pay the above-mentioned dividend of 100 per cent., though the profit had not been realized, nor had it positively been earned. As far as the other operations of the corporation and syndicate were concerned, they were confined entirely to the purchase of several worthless processes and machines from the directors. These operations absorbed practically all the money of the corporation, so that matters soon came to a crisis. The transactions of the promoters and directors should be very closely scrutinized by the shareholders and the vultures forced to disgorge their ill-gotten gains.

We have now the official figures of the gold production of the Transvaal, compiled from the returns made by the companies to the Witwatersrand Chamber of Mines, and from the reports of the State mining engineer. The figures, in crude ounces, as stated in the annual report of the Chamber of Mines, are given in the table below, reduced to fine ounces, at the valuation given in the report named, which would make the gold average ·810 fine in 1896, against ·816 fine in 1895:

Districts:	1895. Crude oz.	1895. Fine oz.	1896. Crude oz.	1896. Fine oz.	Changes. Fine oz.
De Kaap	63,046	51,446	121,590	98,326	Inc. 46,880
Lydenberg	63,506	51,821	50,387	40,813	Dec. 11,008
Klerksdorp	90,841	74,126	38,818	31,443	Dec. 42,683
Zoutpansberg	8,726	7,120	5,602	4,538	Dec. 2,582
Others	1,653	1,349	857	694	Dec. 655
Total outside districts	227,772	185,862	217,054	175,814	Dec. 10,048
Witwatersrand	2,277,635	1,858,550	2,280,892	1,847,523	Dec. 11,027
Total Transvaal	2,505,407	2,044,412	2,497,946	2,023,337	Dec. 21,075
Total values		$42,257,996		$41,822,376	Dec. $435,620

The total decrease in 1896 was, therefore, 0·8 per cent., made up by a loss of 10,048 ounces, or 4·4 per cent., in the outside districts, and one of 11,027 fine ounces, or 0·6 per cent., in the Witwatersrand. The crude ounces reported for the last-named district showed a slight increase, 3,257, but owing to the decrease in values this was converted into a loss in fine ounces. The lower value resulted from the greater proportion obtained from the tailings, the cyanide bullion being less fine than that obtained from the mill. The most notable feature of the year was a decrease in the average tenor of the ore worked on the Witwatersrand, the average yield per ton in 1896 having been only 0·56 ounce. The estimated number of men at work in the district at the close of the year was 7,430 whites and 70,000 natives.

The large gain showed in the De Kaap District in 1896 came chiefly from the Sheba mine, which increased its output very largely. The gain was partly offset by a heavy decrease in the Klerksdorp District during the year.

Australasian Gold Production.

The official returns of the gold production of New South Wales have been completed for the year 1896, and give the quantity obtained in that colony at 296,072 crude ounces. At the valuations given, this was equivalent to 259,063 fine ounces, or $5,354,832. As compared with 1895, this shows a decrease of 56,081 fine ounces, or $1,159,194. This reduction of 17·6 per cent. was due chiefly to a falling off in placer mining and the return of many men who engaged in that work for a time to other occupations, either because mining did not prove remunerative, or because the gradual revival of business gave opportunities for work. The chief losses were in the Bathurst and Adelong districts; the Cobar fields showed a considerable gain, and some other districts also increased their production.

The comparatively small output of South Australia also showed a decrease. The official report gives a total for 1896 of 29,004 crude ounces, equivalent to 27,384 fine ounces, or $566,027. As compared with 1895 the loss was 16,408 fine ounces, or $339,154. This decrease, amounting to 37·5 per cent., was the result of the superior attractions of the West Australian gold-fields, which have drawn off many miners, and left the South Australian districts in some cases almost deserted. The colony is of great extent, but has only a small population as yet, and much development is needed. Some work has been done in the Northern territory, which belongs to this colony, but the results so far have not been very great.

We have now the official returns of gold production of all the Australasian colonies, and we find that while Queensland, Tasmania and West Australia increased their outputs, decreases were reported in the other four colonies.

The total gold production of Australasia as finally ascertained was therefore as below for the year 1896:

	Crude oz.	Fine oz.	Value	Per cent.
New South Wales	296,072	259,063	$5,354,832	12·3
New Zealand	263,722	237,350	4,906,025	11·2
Queensland	638,212	527,525	10,883,272	24·9
South Australia	29,004	27,384	566,027	1·3
Tasmania	62,586	55,258	1,142,295	2·6
Victoria	805,089	756,782	15,642,684	35·8
Western Australia	281,265	251,646	5,201,518	11·9
Totals	2,375,950	2,114,008	$43,696,653	100·0
Totals, 1895	2,350,567	2,070,335	42,793,824	....

The total increase, as compared with 1895, was 43,675 fine ounces, or $902,829, a gain of 2·1 per cent., or somewhat below the estimates made at the close of the year. Nearly all the colonies showed an unexpected falling off in the last quarter of 1896, partly the result of dry weather and scarcity of water.

Australasia led the Transvaal in 1896 by a total of $1,894,277; and therefore remains the second gold producer in the world, giving precedence only to the United States. The result for the current year is still uncertain, depending chiefly upon the amout of placer gold obtained, which is just now decreasing. The production of the quartz or vein mines in all the older colonies is very steadily kept up.

Iron and Steel Production in Great Britain.

The production of iron and steel in Great Britain last year gained while ours was losing. The totals reached almost the highest point ever reported in the case of pig iron, and were quite the highest in steel.

The returns collected from the manufacturers by the British Iron Trade associations, and published in the *Bulletin* of the Association, show that the total output of pig iron in 1896 was 8,563,209 long tons, which compares with 7,895,675 tons in 1895, showing a gain last year of 667,534 tons, or 7·8 per cent.

The total number of furnaces reported as standing in Great Britain is 666, of which on an average 362 were kept in blast during the year. Of the 304 out of blast, the greater number will never be blown again. As in this country, there are many furnaces carried on the lists which, from antiquated construction, small size or bad location, have been practically abandoned because it would not pay to work them.

Decreases were shown in 1896 in only a few of the smaller districts, all the larger and more important ones showing large gains. The greatest proportional increase was of 31 per cent. in the Yorkshire district; this was followed by 23 per cent. in Lancashire, 16 per cent. in South Wales and 8·7 per cent. in the Cleveland District. The total for the second half of the year was less than that for the first half by 93,679 tons.

The product of the furnaces does not seem to be as closely classified or reported as in this country. We find that 4,418,240 tons are reported as hematite (Bessemer) pig, 3,041,438 tons as forge and foundry iron, and 124,636 tons as spiegeleisen and ferro-manganese, leaving no less than 978,905 tons, or nearly 12 per cent., not classified at all.

The average output per furnace for the year, with the total number in blast in each district, is given below:

	Furnaces.	Average tons.		Furnaces.	Average tons.
South Wales	22	36,675	Leicestershire	14	17,313
Cumberland	20	36,039	Yorkshire	17	16,626
Lancashire	21	33,582	South Staffordshire	21	15,557
Cleveland	95	33,368	North Staffordshire	14	15,416
North Wales	3	24,336	Scotland	78	15,128
Lincolnshire	14	21,369	Derbyshire	24	10,886
Northamptonshire	13	17,876	Shropshire	6	7,787

The general average was 23,654 tons per furnace for the year, or about 68 tons per furnace per day. The highest average per furnace was shown in the South Wales District; Cumberland, Lancashire and Cleveland following in order. It is in these districts that the larger number of new furnaces are found, and the latest practice prevails. The lowest production was in the Shropshire District, where there is only a small output from a few old furnaces. The average in South Wales was 4·7 times that of Shropshire.

The total stocks reported on hand at the close of 1896 amounted to 1,214,605, which compares with 1,270,818 tons at the close of 1895. This shows a decrease during the year in stocks of 56,213 tons, and this must be added to the output of the furnaces in order to ascertain the quantity going into consumption. Imports may be disregarded as small, though this may not be the case in 1897.

The total consumption and disposition of the pig iron produced are given as follows, in long tons:

	Tons.
Pig iron made in 1896	8,563,209
Decrease in stocks on hand	56,213
Total to be accounted for	8,619,422
Used in making wrought iron	1,211,000
Used in making Bessemer steel	1,997,637
Used in making open-hearth steel	2,255,000
Used in foundry castings	2,095,989
Exported as pig iron	1,059,796
Total	8,619,422

The advance in steel-making is shown by the fact that 49·3 per cent. of the total production of pig iron was used in making steel, while 14·1 per cent. only was converted into wrought iron. The proportion used directly in the foundry for making castings was 24·3 per cent., and the exports in the form of pig iron formed the remaining 12·3 per cent. The proportion used in the steel works is a little less than in Germany, where from 55 to 57 per cent. of the product of the blast furnaces is Thomas and Bessemer pig; but the difference is accounted for by the larger quantity of iron exported from Great Britain in the form of pig iron.

The production of Bessemer steel in Great Britain has also been ascertained, and is given below; we have added that of open-hearth steel, which is not yet fully reported, but is closely estimated:

	1895.	1896.
Acid Bessemer	1,093,675	1,357,580
Basic Bessemer	441,550	458,262
Total Bessemer	1,535,225	1,815,842
Open-hearth steel	1,724,737	2,050,000
Totals	3,259,962	3,865,842

In addition there was turned out in 1896 an estimated quantity of 105,000 tons of crucible, blister and other special steels, making the total output of steel for the year 3,970,865 tons. The increase was chiefly in the acid Bessemer steel, the basic process making apparently little advance. The open-hearth production has passed the Bessemer and last year made about 53 per cent. of the total.

There were last year 101 Bessemer converters in existence in Great Britain, of which 60 were at work. Of the other 41 several are in smaller and older plants, which are probably disused permanently. The average output was 30,264 tons of steel per converter for the year. The heaviest production of steel was in South Wales, the Cleveland District coming second and West Cumberland third. The Cleveland District made over 60 per cent. of all the basic steel.

Of the steel ingots made 317,607 tons were reported disposed of in the form of blooms and billets. Production in finished forms included 817,476 tons of rails, 42,104 tons plates and angles, 257,231 tons of bars and shapes, 49,603 tons railroad ties and 34,516 tons tires. The greatest gain shown was in rails, 213,138 tons; in bars there was a decrease of 69,800 tons, and there was a loss in plates and angles also.

Upon the whole the year was a very prosperous one for the British iron trade, and all the indications at present are that the current year will show still larger production.

NEW PUBLICATIONS.

THE COMMERCIAL YEAR-BOOK: A STATISTICAL AND HISTORICAL RECORD. VOLUME II., 1897. Compiled and edited by Walter A. Dodsworth. New York; The *Journal of Commerce and Commercial Bulletin*. Pages, 612. Price, $1.50.

The first volume of this useful hand-book appeared a year ago, and the compiler and publisher have taken advantage of a year's experience to make many improvements and additions. It is a most convenient manual for merchants, both those engaged in foreign trade and those whose operations are confined to this country. It contains a great variety of useful information, such as statistics of production and manufactures of imports and exports in this and other countries; notes on railroads and internal transportation lines and on steamship lines; the United States tariff; summaries of foreign tariffs; and many other items which a merchant needs to know in the course of his daily business transactions. The *Journal of Commerce and Commercial Bulletin* is a well known and most reliable commercial newspaper and the *Year-Book* has evidently been compiled with much care. It will be found useful in almost all departments of trade, as the work of the publishers with their paper has shown them what a merchant wants; and this they have well supplied.

NOTES ON ASSAYING. By Pierre de Peyster Ricketts and Edmund H. Miller. New York; John Wiley & Sons. Pages, 311; illustrated. Price, $3.

This book is intended to replace the *Notes on Assaying and Assay Schemes* published in 1876 and revised in 1879. According to the preface, "the general arrangement is the same; . . . many new and rapid methods are included; . . . but in no case has any method been described which has not been found successful . . . in the assay laboratory of the School of Mines, Columbia University."

A review of this book must be influenced by consideration of the use to which it is to be applied. If it is to be held solely as a text-book for Columbia students it deserves criticism in several respects, but on the whole may be commended; if, on the other hand, it is intended for a general reference and text-book we are of the opinion that it is less useful than some of the other recent works on the subject, and, consequently serves no good purpose. We shall consider it from the latter standpoint.

The chief fault that appears to us is the inclusion in the book of so much unnecessary or useless matter, which adds only to its bulk, and the omission of much that might well have been included. In passing it may be remarked that to the average engineer and chemist, who as a class are likely to change residence frequently, the bulkiness of reference books is a serious question. Why, then, is it worth while, at this stage of our development in scientific pursuits, to include pictures of balances taken from makers' catalogues, and cuts of assay-tongs, a bucking-plate, a Blake crusher and a Bridgman sampler, etc., etc.? Why waste several pages on a list of chemical apparatus required, which any novice can see is not indispensable? In short, out of the 59 pages which constitute Part I. of the book, the first 37 might have been omitted without loss, and the remaining 22 pages might have been cut down one-half or more.

Dry or fire assays are treated in Part II., which includes methods, for nearly all the common metals—lead, antimony, bismuth, tin, iron, copper, nickel and cobalt, mercury, gold and silver, platinum and carbon. The subject is treated in a sufficiently satisfactory manner, but we are led to inquire what good there is in including an account of the fire assay for iron? and why waste space on the fire assay for antimony, which is notoriously inaccurate, unless the result is corrected by the wet method indicated by the authors; and after all the direct wet method is the easiest?

Part III., on wet assays or analyses, is less satisfactory than Part II., because it is not comprehensive enough. For instance, under the caption "Lead" the gravimetric and the ammonium molybdate method described by Alexander are the only ones included, although the ferrocyanide and permanganate methods are also quick and are used for commercial determinations in this country.

The remaining parts of the book contain numerous reference tables and analytical schemes which are useful, though most of them could have been put in much more condensed form. But why eight pages should be consumed by types of assay report-blanks, which probably will not be used outside of the Columbia School of Mines, since most chemists have their own ideas on this subject and will follow them anyway, is not clearly apparent.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

Tables for Earthwork Computation. By C. F. Allen. Boston, Mass.; Published by the author, 1893. Pages, 38; illustrated. Price, $1.50.

Witwatersrand Chamber of Mines: Eighth Annual Report, 1896. Johannesburg, South African Republic; Argus Printing and Publishing Company. Pages, 276; with maps and tables.

The Elements of Physics. Volume III.—Light and Sound. By Edward L. Nichols and William S. Franklin. New York and London; the Macmillan Company, 1897. Pages, 201; illustrated. Price, $1.50.

Annual Report of the Minister of Mines of the Province of British Columbia for the Year Ending December 31st, 1896. Victoria, B. C.; H. M. Printer. Pages, 204; with maps and illustrations. Price, 50c.

Proceedings of the Fifth Annual Convention of the California Miners' Association, held in San Francisco, Cal., November 10th and 11th, 1896. San Francisco, Cal.; Printed for the Association. Pages, 131.

Report of the Commissioner of Agriculture of the State of Florida, for the Period beginning January 1, 1895, and ending December 31, 1896. L. B. Wombwell, Commissioner of Agriculture. Tallahassee, Fla.; State Printers. Pages, 213.

Anderson's Map of Monte Cristo and Silver Creek Mining Districts, Snohomish County, Washington. Seattle, Wash.; Compiled and published by the O. P. Anderson Map and Blue Print Company, 1897. Scale, 2,000 ft. to an inch. Price, $1.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested. Letters should be addressed to the MANAGING EDITOR. We do not hold ourselves responsible for the opinions expressed by correspondents.

Checking Multiplication by Excess of Nines.

Sir: You gave in your issue of March 13th a rule for "Checking Multiplication by excess of Nines." Should you not call attention to the fact that the rule is inoperative in the case of all errors which alter the sum of the digits in the product, by nine or any of its multiples? Mr. Steger gives as example, 286,547×7,926=2,271,171,522. Had he incorrectly made the product to be, say 2,271,101,502 or even 9,999,999,993, or 3, or any one of a multitude of quantities similarly related to the true result his rule would have proved it to be correct. ISAAC B. THURBER.

PROVIDENCE, R. I., March 15, 1897.

Sir: Touching the extract from the *Engineering News*, published in your issue of March 13th, on "Checking Multiplication by Excess of Nines," why did not Mr. Steger go further and not leave anything to mental arithmetic? I take his two examples as illustrations: 1. Multiplicand, 286,547; sum of digits, 32; $3 + 2 = 5$. Multiplier, 7,926; sum of digits, 24; $2 + 4 = 6$; $6 \times 5 = 30$; $3 + 0 = 3$. Product, 2,271,171,522; sum of digits, 30; $3 + 0 = 3$.

2. Multiplicand, 72; sum of digits, 9. Multiplier, 65; sum of digits, $11 = 2\,(1 + 1) = 9 \times 2 = 18 = 9$. Product, 4,680; sum of digits, $18 = 9$.

That is to say, after summing up the digits, instead of dividing by 9 and taking the remainder as your check-number, why not continue the process? He gets in (1) 32, which number, divided by 9, leaves 5, $3 + 2$; the sum of the digits in his first summing up, gives the same. It seems to me a little easer. WILLIAM R. BOGGS, JR.

WINSTON, N. C., March 15, 1897.

Chrome Ore for Furnace Linings.

Sir: In reference to the articles on this subject by Mr. Herbert Lang in your issue of January 23d last, and the subsequent letters by Mr. Thomas Egleston in your issue of February 6th, and by Mr. George A. Packard in that of February 13th, we have to say that chrome ore for furnace linings is no new thing. We have had an extensive experience

in handling chrome ore for over a quarter of a century, and for 10 or 15 years have been supplying this ore, of a special quality, for the purpose of lining furnaces. We were the first to introduce it for this purpose and for the last 15 years or so it has been used regularly by our largest steel manufacturers in Lancashire and Yorkshire, and also in France and Germany.

We may remark that it is not necessary to make the chrome ore into bricks. A better method and one more generally used is to crush the chrome ore to pieces about the size of peas, mix the crushed ore with tar, and line the furnace in the same way as would be done with mortar or cement. In use the tar burns away, leaving a solid lining of chrome ore, which has been found by experience to give satisfactory results.

GEORGE G. BLACKWELL, SONS & COMPANY.

LIVERPOOL, England, March 26th, 1897.

Telluride Gold Ores.

Sir: Referring to an enquiry in the *Engineering and Mining Journal* of April 3d for information bearing on the tests which may be applied to determine the presence of tellurium in ores, I beg to enclose a "A Few Hints to Prospectors," published in 1895, which may possibly be of some value to your correspondent.

I would add that in case tellurium is suspected in an unoxidized form as a telluride, a very simple test, and one which has been known for many years, is to place a minute fragment of the mineral in a white porcelain dish, and add a drop of concentrated sulphuric acid; heat the acid gently over the flame of a spirit lamp, and if tellurium is present, a beautiful carmine color is at once developed. Should the tellurium be associated with other minerals commonly found with gold-bearing ores, this test is of little or no value, as these minerals interfere with or conceal the reaction. For the detection of tellurium under such conditions as the above, a sample of the fine pulp may be treated with strong nitric acid in a porcelain dish and heat applied until the material is perfectly oxidized; strong sulphuric acid is then added and heat applied until the excess of nitric acid is expelled, or until copious fumes of sulphuric acid are given off. When cold, hydrochloric acid and water are added in about equal proportions filtered, and the clear filtered solution is treated with stannous chloride, precisely as in the case of oxidized tellurium ores. This operation requires some little chemical skill, and may be mentioned more as a hint to assayers than to prospectors. RICHARD PEARCE.

ARGO, Colo., April 7, 1897.

German and American Technical Schools.

Sir: In the *Engineering and Mining Journal* for March 6th last there appeared under this heading a reply by Prof. H. O. Hofman to an article contributed by me to *Stahl und Eisen*, concerning the course of instruction at the Massachusetts Institute of Technology. I am thankful to Mr. Hofman that he has treated the subject purely in its essential features, yet I cannot help expressing the opinion that he has not quite correctly interpreted the meaning of my statements. Any one who sees the rejoinder of Dr. Hofman without having previously read my article will naturally suppose that my purpose had been to write an encomium upon the Freiberg Mining Academy. That was very far from my intention. In reality, I did not by a single word refer to the Freiberg Academy. My purpose was to state that in Germany the course of instruction in vogue for the education of engineers in mining, metallurgy and other branches, according to which the first condition is the young man must have been employed at least one year as workman at works before attending the technical school, is preferable to the course adopted at the Massachusetts Institute, because the latter leaves only little time for special technical studies.

Further, one statement in Dr. Hofman's reply is not correct. "Professor Ledebur expresses great surprise, etc." After reading my article over again, I find not the slightest indication of " great surprise."

As I was already familiar with the American conditions of education and the requirements which are usually made for the preliminary education of the students in technical educational institutions in general, there was no occasion whatever given me " to be surprised."

I can only beg those readers who desire to form their own judgment to read my article in *Stahl und Eisen* of February 1st, 1897, and not to decide upon its contents from Professor Hofman's communication alone. The purpose of the discussion was to determine whether it would be judicious to introduce into the German technical schools regulations similar to those existing at the Massachusetts Institute. I have arrived at a negative conclusion. A. LEDEBUR.

FREIBERG, Germany, March 20, 1897.

Gold in the Dutch East Indies.

Sir: With a great deal of interest I read in your issue of December 12th, 1896, the article on " The Gold Fields of the Future." You say that it is believed that " there are valuable gold deposits in Borneo and others of the great islands of the Indian Ocean, but that the interior districts of all those islands are but little known and that the conditions are very unfavorable to their exploration as they are occupied by native races who are extremely jealous of European encroachments, and are at the same time warlike, treacherous and much more tenacious and difficult to control than the African races, who are generally quite satisfied to live under and work for the white man when they are once subdued. The Malays and Dayaks of Borneo and Sumatra are never really conquered and are always ready to kill their would-be masters." Allow me kindly to make some corrections as regards the above-mentioned statements: That in Sumatra, Borneo, Celebes and most probably in many others of the islands of the Indian Archipelago extremely rich and very extensive gold deposits exist is a fact which is not to be doubted, and certainly the time will come when they will claim their place among the great gold-producing countries of the world; a place which Sumatra already held ages ago, as is mentioned by Claudius Ptolomaeus in the second century of our era and in early Sanscrit poems. Marco Polo, the first European traveler, who visited Sumatra in the thirteenth century, mentions that it produces gold, and Mendes Pinto, a Portuguese who went there in search of this metal, reports that the tale of Solomon and the Queen of Sheba, who once established a factory in the isle of Sumatra, was one of the ancient traditions of the country, as it is still. But whether the development of the auriferous wealth of the islands of the Indian Archipelago will occur in the near future is a matter which is difficult to predict, and depends wholly upon circumstances. It must come in a different way from that in which it has been accomplished in the principal gold-producing countries of the present time.

The climate of the tropics does not allow the European to prospect the country for the workable deposits. Large companies will have to be organized for the exploration and the proper working of these deposits. Up to the present time only a few companies have been formed for this purpose and with very limited means; one has its field of operations in Borneo and two in Celebes. Although the ores which they produce are said to be very rich, the working has been only on a very limited scale. The Dutch are rather sceptical about gold mining. Money for such mines is very difficult to obtain and is not to be had at all until it shall be proved by example that such companies can pay substantial dividends. The public will then become aware that in the Dutch colonies there is plenty of opportunity to earn large profits in gold mining.

The conditions are generally very favorable for the working of the deposits. A better watered country you will hardly find anywhere, and, besides this, there is cheap labor and plenty of timber. The Malays are not treacherous. I have lived for 18 years among them and have been satisfied with them as workmen, especially when it is taken into consideration that they are paid from 16c. to 20c. per day only, while Chinese labor can be had at 40c. per day. I have driven a tunnel of 1,400 ft. with the aid of boring machinery and no other workmen than Malays. Although there may be some treacherous individuals among the Malays I doubt whether this is more the case than among Europeans. I have met with no treachery among the Malays of Sumatra, but, on the contrary, with much good faith and fairness. Although in Sumatra, Borneo and Celebes—Java, the most important of the islands commercially, is not so as regards minerals—there exist in the interior of the country considerable portions which are still inaccessible, because no regular government has been established as yet in those parts. In the districts where this has been done very extensive tracts of gold-bearing country exist and also all the conditions for safety and for the proper establishment and development of the gold-mining industry. The richest, and, in my opinion, the best-situated gold-fields, are those of the west coast of Sumatra.

I have said that the Dutch at present are very skeptical about gold mining, and this accounts for the fact that so little has been done in this direction. But this has not always been the case. There was a time when the success of the Spaniards in Mexico and South America stimulated our ancestors to try and follow the same line. During the seventeenth and even the beginning of the eighteenth century the Dutch East India Company was constantly searching for gold mines, and strange to say those countries, which during our time have proved to be so rich in precious metals—California, Australia and the Transvaal—lay in their grasp; they actually sent out several expeditions to those countries in order to search for gold mines. In the Indian Archipelago they actually tried to work some mines with German miners and mining experts, and they did so in Java, in Celebes and in Sumatra. But only in the latter island did they meet with success, and when at last they gave up these trials it was only because of the technical difficulties which they were not able to surmount and the impossibility at that time of treating the minerals on the spot.

The mines which they worked in Sumatra were situated at a distance of only about four miles from the coast. The geological features in this particular part of the country offer much resemblance to those of Storey County, Nevada, showing extensive quartz lodes bearing gold and silver in eruptive rocks, andesites of Tertiary age. More in the interior of the province, in the highlands, the geological features of the country are different; while in the northern part the gold-bearing quartz veins principally occur in granite, in the southern part Eozoic schists are prevalent as the bearers of the veins. The same lodes on which the East India Company began its operations had been formerly worked by the natives on an extensive scale by open cuttings and for their contents of gold only. The silver ores which they carried were of no use to them. The East India Company saw its way to use these ores also, but not to reduce them on the spot. Only the richest ores were picked and sent to Europe to be sold in Amsterdam by public auction. When the officials at the mines repeatedly urged the necessity of erecting a mill and some ore-dressing machinery at the mines in order to concentrate the lower grade ores which they were obliged to throw upon the waste heap, the directors ordained that no ores should be sent to Holland which had an assay value of less than 6 stuiver per Amsterdam pound (about $246 per ton of 2,240 lbs.). The most urgent in his entreaties to the company was Berghauptmann Gabriel Muller, a German mining official, who says in a report of the year 1688 that he could easily double the production if only he had a very simple stamp mill at his command, and that in order to be able to send such rich ores to Europe as the directors desired to receive he was obliged to throw upon the waste heap at least twenty times the quantity, which still contained much valuable ore. With a simple sluice-box he made a trial and concentrated some of this waste ore. Reduced to a tenth part of its weight the concentrated ore was showed by assay to contain what would correspond to 7½ oz. silver and 1½ oz. gold to the ton of the original ore. But taking into consideration the crude manner in which the trial was made, it is hardly to be presumed that in this way all the gold and silver was saved, so that the average of the ore which was thrown away must have had a much higher tenor. But Muller's demonstrations were of no avail. Knowing nothing about mining, about the manner of occurence of the ores nor of the necessary treatment, the directors evidently did not comprehend his demonstrations.

Still, by working the lodes in this imperfect manner and to no greater depth than about 120 ft., as the mines were abandoned in the year 1696, they were able to send to Europe a quantity of 1,649,174 Amsterdam pounds of selected ores of an assay value of 1,218,960 guilders in gold and silver, while the expenses had been about 1,100,000 guilders. Up to the last moment the mines continued to produce considerable quantities of rich ores. July, 1696, was the last month that they were worked. The production of that month was 5,100 Amsterdam pounds, with an

assay value of 9,945 guilders in gold and silver. In a letter of July 8th, 1693, the directors of the company acknowledged, when they gave the order to stop further working of the mines, that it was not the poorness of the ores, but only the inability to work the mine in a proper way, which was the reason of the stoppage.

Those mines at Salida are now in the same condition as they were left by the East India Company. Although during the early part of the eighteenth century, and even quite recently, projects have been started to work them again, nothing has been done yet.

At the Cape also the East India Company was searching after copper and gold mines. On August 27th, 1683, the Ensign Oloff Bergh started from Cape Town on a voyage of discovery to the interior with 42 Europeans, 10 natives, 7 carts, 3 carriages, 162 oxen and 5 horses. They discovered some copper deposits but no gold. On August 25th, 1685, the Commander van der Stell went on the same errand with a still larger expedition, and was then accompanied by several German miners sent purposely from Europe, but this expedition also returned without having obtained the desired success.

In June, 1663, a fleet of 17 vessels with 1,800 mariners and 1,200 soldiers left Batavia under the Commander de Bont and Commander Hubreght de Lairesse. The principal object of this expedition was to re-conquer Tayoan and Formosa. They received orders to erect several fortresses and among others one on the isle of Quelang "because from here one day or the other it might be possible to get at the gold mines of Terraboan, where in former times the Spaniards had done so much work." But the fleet was obliged to return without having been able to execute the orders received and therefore de Bont started again in July, 1664, with a fleet of 12 vessels. When they arrived at the Isle of Quelang the fortifications which were abandoned in 1661 were found in the best condition. A garrison of 240 men was left behind. However, in 1668, the possession was abandoned after only a very little gold had been obtained. Under Abel Janssoon Tasman, two vessels sailed from Batavia August 14, 1642, in order to discover the unknown "Southland." On this voyage Van Diemens Land and New Zealand were discovered. On June 15, 1643, the fleet returned to Batavia after having for the first time circumnavigated the continent of New Holland. On this first voyage they had not been able to penetrate far enough into the interior of the country to know, as Governor-General Van Diemen, at Batavia, afterward wrote to the directors of the East India Company in Holland, whether there existed any rich gold mines in those parts of the world.

Very interesting is a paper in the National Archives in the Hague, a letter written from Japan in the year 1635 by a certain William Verstege and addressed to Governor General Henricq Brouwer, at Batavia. Many years ago, says the writer of the letter, a vessel sailed from Manilla to Nova Hispania. In the Pacific Ocean at a northern latitude of 37½°, and at a distance of from 380 to 390 miles to the east of Japan, this vessel was overtaken by a heavy storm in which she lost her mast and therefore was obliged either to return or to put into the nearest land which they could reach. As the weather cleared up a little they saw a large and mountainous island, to which they took their course and landed. The people they met on the shore were fair and well proportioned and extremely kind.

After having fitted a new mast the voyage was continued. But the visit paid to this island had been satisfactory, and the crew said that gold and silver was so plentiful on the island that one could pick it up on the shore. Even the kettles and other cooking utensils which the people there used were made from these metals.

The King of Spain, having heard of the occurrence, sent an order to the Viceroy of Nova Hispania that he should make investigations after the island, and a vessel was accordingly fitted out at Acapulco for this purpose. The vessel was first to take her course to Japan, and having sold there the wares and merchandise which she carried from their produce a second one should be built. This expedition failed, and most probably the Spaniards, after the ill-success of their first attempt, had not renewed it. William Verstege, however, thought it his duty to communicate the information which he had obtained to the Governor-General and thought it worth while that the matter should be taken into careful consideration. It would not be such an expensive undertaking to send out a couple of vessels from Japan in search of the island. It was mountainous and situated at a distance of from 380 to 390 and at the utmost 400 miles east from Japan, and at a northern latitude of 37½°. This letter seems to have made a favorable impression upon the Governor-General and to have induced him to send out an expedition in search of the wonderful island. Consequently on July 2, 1839, two vessels called the *Engel* and the *Gracht* left Batavia under Commander Matthys Quast. Abel Janssoon Tasman was subordinated to him as commander of the *Gracht*. According to their orders they had to continue their voyage at a northern latitude of 37½° till they reached the continent of America, if at a distance of about 400 miles eastward from Japan they did not find the island. It was not found, although at that latitude they pursued their course to a distance of 600 geographical miles from Japan.

A second expedition was sent out to the same purpose in the beginning of the year 1643, with the two ships *Castricum* and *Breskens;* Commander Maerten Gerritsoon Vries and Under-Commander Hendrik Cornelis Schaep. But this time also the expedition failed. On the east coast of Nippon the two vessels were separated by a hurricane. The *Breskens*, after having lost her captain and nine men, who were captured by the Japanese in going on shore, sailed eastward and was obliged to return on account of sickness among the crew, after reaching a distance of 480 miles only from Japan. The *Castricum* also had to return without any result after having sailed 450 geographical miles from Japan.

Between the 37th and 38th degrees of northern latitude no island certainly could be discovered, but if Matthys Quast had seen his way to execute the orders which he had received, and to continue his voyage till he had reached the continent of America, he would have reached the land somewhere in the neighborhood of San Francisco. The establishment of a colony in those regions would not have been beyond the reach of the East India Company. It could have been supervised from Batavia just as well as Manilla was from Mexico. The East India Company had ill luck in its search for gold mines.

HAARLEM, Holland, Jan. 14, 1897. REINIER D. VERBEEK.

THE KEITH ELECTRO-CYANIDE PROCESS.

The process for recovering gold from ores is being exploited by some influential South African men, of whom Mr. Paddon and Mr. Tudhope, of the Johannesburg Consolidated Investment Company, are the chief. Dr. Keith, the inventor, is an American electrician, who has for several years been connected with the Sandycroft Foundry in England. The process consists of two parts, that may be separately considered: First, the process for dissolving the gold out of the crushed ore, and second, the recovery of the gold from the solution. Dr. Keith's improvement in the dissolving process consists in adding to the solution of potassium cyanide a certain amount of cyanide of mercury. In practice he states that he finds that the best results are obtained when the solvent contains 0·05% of potassium cyanide and 0·025% cyanide of mercury. This mixture of cyanides, it is claimed, operates very much faster than the simple potassium cyanide. At present we have no exact figures relating to the rate of solution, but experiments on a practical scale are now being made and will be available shortly.

The process for the recovery of the gold from the solution is an electrolytic one. The gold and the mercury are deposited together upon amalgamated copper plates. The amalgam so deposited is scraped off and the gold recovered by distilling off the mercury in the usual way. The anode is not allowed to dip into the cyanide solution, but is placed in a separate compartment and surrounded with a solution of an alkaline salt, so that the cyanide does not become decomposed. The electro-motive force of the current need not be more than ½ volt and the current density on the depositing surface may be as low as 0·06 ampere per square foot.

Telluride of Bismuth in New South Wales.—The Geological Survey of New South Wales says that at Tarana this mineral was first noticed by Mr. E. C. Whittel, field assistant, at Mitchell & Party's claim, near Slippery Creek. It occurs along with free gold in small grains and flakes in the quartz, and is associated with greenish and yellow alteration products. The telluride is most probably auriferous. A similar mineral has recently been found, also associated with free gold, in a white quartz from Kentucky Run, near Uralla. Telluride of bismuth has been previously recorded from Captain's Flat, Molonglo, and from Moor Creek, Tamworth.

American Steel Practice in England.—The London *Iron and Coal Trades Review* says that "some well-known American metallurgical engineers now in England have been making overtures with a view to the reorganization and reconstruction of one or more of the Bessemer steelworks that have been idle for a considerable time, these works including West Cumberland, Tredeger, Rhymney and Darlington. The proposal is to construct on the most modern American principles, so as to achieve a large output with a minimum amount of labor. It would be a new thing to see a rail mill in this country producing 30,000 to 45,000 tons of rails a month. The danger is that two such mills would swamp the rest. Our rail trade is already sufficiently provided for, however, and it would probably be better worth while to consider what could be done in the way of cheapening the cost of manufacturing wire rods, billets and nails, in which we are far behind."

The Scandanavian Exposition.—According to statements received by the Swedish consuls in this country, an important branch of the Scandinavian Exhibition, which is to be given this summer in Stockholm, is that pertaining to the mining industry. The exhibit will contain all the implements made for mining purposes, all that concerns the different modes in which metalliferous deposits occur, the exploration and examination, the methods of working and the arrangements for hoisting, pumping and conveying the ores from the mine, and their dressing and sorting. The exhibit is also to comprise instruments for mining, surveying and a collection of old and new plans of mines, as well as an historical exhibit containing, among others, a series of rock drills, from the most obsolete patterns used in Sweden, to the most modern, and models of pumping engines, etc., used in old times. Electric rock drills will be kept working in the adit, and the winding engines, ore crushers, magnetic separators, tipping wagons, turntables, balances, etc., will be exhibited in the open air.

Electric Railroads in Europe.—Mr. Thomas Ewing Moore, commercial agent for the United States at Weimar, Germany, has submitted to the State Department, Washington, an interesting report concerning electric railways in Europe. He states that electric locomotion is gradually gaining ground in the various European countries, though not to the same extent as has been the case in the United States. During the year 1895, the total number of electric railways or tramways, in Europe rose from 70 to 111; the length of lines from 435 to 560 miles, and the output of the central stations from 18,150 to 25,095 kw., while the number of cars increased from 1,236 to 1,747. The mileage of electric railways in the principal European countries is as follows: Germany, 252 miles; France, 82 miles; Great Britain and Ireland, 66½ miles; Austria-Hungary, 44 miles; Switzerland, 29 miles, and Italy 24¼ miles. Servia, Russia, Belgium and Spain have but from 6¼ miles to 18½ miles, while the remaining countries have less than 5 miles each. Of the 111 lines, 91 are operated on the overhead surface system, 12 on the underground system, and 8 by means of accumulators. It is estimated that the new lines projected for the present year will exceed in number and mileage those constructed during any previous year. Considerable activity exists in planning and laying out new routes. The capital invested in electric lines in Germany alone is estimated at $23,800,000. German electrical companies and supply manufacturers have greatly increased in number and capital during the past few years. Berlin is about to introduce general electric locomotion in its streets, and the electric street railways in Hamburg and Leipsic are about completed.

The overhead system, Mr. Moore states, will be preferred for the lines contemplated, or in course of construction, on account of its cheapness,

ABSTRACTS OF OFFICIAL REPORTS.

Central Mining Company, Michigan.

The report of this company for the year ending December 31st, 1896, gives the total production of copper at 469,243 lbs., an increase of 90,223 lbs. over 1895. The gross receipts were $53,223 and the expenses $68,104, showing a deficit of $14,881 for the year. The surplus at the opening of the year was $65,140; deducting this deficit there remained a balance of $50,259 on December 31st, 1896. The assets on that date were: Cash and loans, $34,727; cash and supplies at mine, $7,967; copper on hand, $21,366; total, $64,060. Accounts payable amounted to $13,801, leaving a balance of $50,259, as above.

The directors say that it became necessary early in the year to discontinue work in the bottom of the mine, the explorations there demonstrating that the ore body worked so many years does not extend below the fault in the formation encountered at the 30th level. The work of the past year has been mainly directed toward developing the southern end of the mine. The extension of the 21st level south has continued to open a fairly productive vein, and the product for the year has been principally derived from this point. The 20th level has also been re-opened and extended into this ground. Three of the levels above are being re-opened and will be extended into the same run of ground. As all of these levels (in which work was discontinued many years since) are crushed in by the pressure of the rock and decaying of the original timbering, a considerable expenditure of time and money becomes necessary to reach the required point.

Napa Consolidated Quicksilver Mining Company, California.

The report of this company covers the year ending December 31st, 1896. The receipts from sales of product were $158,838; expenses were $110,202, leaving a profit of $48,236. The dividends paid were $60,000, or 8·57% on the stock, showing a deficit of $11,364, which was drawn from the surplus. The assets at the close of the year included $50,820 quicksilver on hand, $11,756 supplies; $450 cash; a total of $63,026. Liabilities included $33,580 unpaid drafts and overdrafts, and $566 unclaimed dividends, a total of $34,146, leaving a surplus balance of $28,880.

There were $17,880 tons of ore worked, from which 382,500 lbs. of quicksilver were obtained. The ore thus showed an average of 10·7% metal. The receipts per pound of quicksilver were 41·5c., the expenses 28·8c. and the profit 12·7c. The yield per ton of ore was $8.88, the expenses $6.16 and the net earnings $2.72.

New development included 5,125 ft. of drifts and tunnels and 263 ft. winzes sunk. The treasurer's report says: "The year was one of dull business and low prices, even compared with 1895; but the prospects are now very good for a good demand and better prices. Quicksilver has already had an appreciable advance, and the demand is increasing. We have spent a large amount in prospecting and development work; the property is in good condition, and the ore bodies well opened ahead. We have not as yet started the second furnace, but are likely to do so at an early period, thus increasing our production. As usual, we have no construction account, and all expenditures of whatever nature are charged directly to expense account."

Ætna Consolidated Quicksilver Mining Company, California.

The report of this company for the year ending December 31st, 1896, shows that the receipts from quicksilver sold were $120,236. The expenses—including $4,812 for repairs and $4,396 for depreciation—were $73,244, leaving net earnings of $46,992. From these was paid in dividends $40,000, or 8% on the stock, leaving a surplus of $6,992. The general account shows assets: Plant, $501,712; quicksilver on hand, $37,620; supplies, $6,561; cash, $6,618; total, $552,511. The liabilities were: Stock, $500,000; unpaid drafts, $2,284; total, $502,284, leaving a surplus balance of $50,227.

There were 16,392 tons of ore treated during the year, yielding 290,700 lbs. of quicksilver; the average tenor of the ore was 8·87%. The earnings were $7.34, the expenses $4.47 and the profit $2.87 per ton of ore. The average receipt was 41·4c. per pound of quicksilver, and the average cost 25·2c., leaving a profit of 16·2c. per pound.

New development included 2,286 ft. of drifting and tunneling and 408 ft. of winzes sunk. Better prices were realized for the product than in 1895. The treasurer's report says: "Although 1896 was a poor business year, yet the results show a very satisfactory condition of affairs, and we enter upon a new year with bright prospects. The ore bodies between 7th and 9th levels are showing good ore, and we have continued to carry on extensive prospecting and development work with promises of good results. Quicksilver is in good demand and the prospects of its so continuing with better prices are very good."

Victor Gold Mining Company, Colorado.

This company has issued a report which covers the year ending December 31st, 1896, and also sums up the operations of the company from the organization, February 15th, 1893, up to the close of 1896. The general balance sheet at the close of the year shows assets as follows: Property and plant, $1,023,534; working expenses to date, $458,246; dividends paid, $705,000; cash on hand, $51,025; total $2,237,805. The liabilities show: Capital stock, $1,000,000; receipts from ore sales, $1,237,805; total, $2 237,805.

For the year 1896 the receipts from sales of ore amounted to $449,668; the expenses were $194,615, leaving a balance of $255,053. From this there were paid dividends amounting to $240,000—twelve monthly payments of $20,000 each—or 24% on the stock, leaving a balance of $15,058. The expenses in detail are given below:

Wages, mining and development	$125,625	Office expenses	$4,166
Assaying and sampling	4,898	General expenses	8,619
Fuel	5,422	Legal expenses	1,119
Mine timbers	3,132	Insurance	3,367
Engineering	877	Dividend expenses	531
Hauling	20,141		
Team maintenance	872	Total	$194,615
Mine supplies	14,856		

The report gives the following summary of operations from February 15th, 1893, to December 31st, 1896: Area of property, 10·17 acres; total length of drifts, 7,098 ft.; depth of main shaft, 460 ft.; product, 37,254 tons; smelting ore sold, 6,251 tons, average $146.27 per ton; cyanide ore sold, 30,383 tons, average $8.24 per ton. The sales of smelting ore produced $987,446; cyanide ore, $250,359; total sales, $1,237,805. The working expenses in all amounted to $458,246, leaving a balance of $779,559, from which $705,000 in dividends were paid. This leaves a balance of $74,559, from which are to be deducted $23,534 for additions to property, leaving $51,025 on hand at the end of 1896. The average cost of obtaining $1 from the mine was $0.37.

The superintendent reports that work on development has been steadily pushed, both on the main and west veins. At present most of the ore is being taken from the fourth and fifth levels. The estimated quantity of ore in sight is 32,000 tons. The mine is well equipped with machinery. At present the great need is a supply of water, and a pipe line from a spring on the company's office property is recommended, unless water should be found in the mine before long.

The values of ore given above are the net returns to the company. The average charges for freight and treatment were $14 per ton on smelting, and $8.50 on cyanide ore. This would make the total average values $160.27 per ton for smelting and $16.74 for cyanide ore.

The president's report contains a general description of the mine and property and some account of the Cripple Creek District. It may be noted that the report is printed on parallel pages in English and French, the latter having been added for the benefit of the foreign stockholders. It is accompanied by some excellent illustrations.

Lehigh Coal and Navigation Company.

This company owns an extensive anthracite coal estate; it owns and operates the Lehigh Canal and it also owns the Lehigh & Susquehanna Railroad, which it leases to the Central Railroad Company of New Jersey; The revenue for the year ending December 31st, 1896, was as follows: Rental of Lehigh & Susquehanna Railroad, $1,475,892; from other railroads, $75,233: from Lehigh coal lands, $226,946; miscellaneous, $136,768. total, $1,914,339. From this must be deducted the loss on operating canals, which amounted to $16,060, leaving receipts $1,898,279. Out of this amount there was paid for general expenses, rentals, taxes and interest $1,339,731, leaving a surplus of $558,548. Two dividends, each of 2%, were paid on the capital stock, amounting to $573,866, leaving a difference of $15,318, which was charged to profit and loss, as was also the usual sinking fund charge of 10c. per ton on 958,165 tons of coal mined, amounting to $95,817.

The earnings of the Lehigh & Susquehanna Railroad show a falling off during 1896 as compared with 1895 of $182,259, of which the loss on coal traffic was $166,960. The decrease in the coal traffic was due to the smaller tonnage made necessary by the overproduction of the previous year. The one-third due this company as rental was $60,992 in excess of the guaranteed minimum rental of $1,414,400, as provided by the terms of the lease.

The coal tonnage of the Lehigh & Susquehanna Railroad and Lehigh Canal, compared with that of 1895, was as follows, in long tons:

	1895.	1896.
From the Wyoming region	2,821,928	2,697,136
From the Upper Lehigh region, Nescopec branch	388,338	343,617
From the Black Creek region, Drifton branch	6	.....
From the Beaver Meadow region	843,187	722,394
From the Mauch Chunk region	1,333,584	1,358,635
From the Lehigh Valley Railroad, Penn Haven and other points	26,552	18,840
From the Schuylkill region	180,425	172,717
Total	5,594,020	5,313,359
Distributed as follows:		
Delivered east of Mauch Chunk by rail	4,849,410	4,599,763
Delivered east of Mauch Chunk by canal	262,000	275,100
Consumed on line above Mauch Chunk	219,915	220,817
Delivered to connecting lines above Mauch Chunk	262,695	217,679
Total	5,594,020	5,313,359

This shows a decrease of 280,661 tons in 1896, as compared with 1895. The directors' report says, in conclusion: "The net earnings from coal were $226,946, and the production from this company's property, including the coal used by the company in its operations, was 1,549,098 tons, which was 27,402 tons in excess of the amount produced in 1895. The total shipments and local sales amounted to 1,399,955 tons. The daily average production continues to show a gratifying increase; during 1896 it was 8,003 tons as compared with 7,377 tons in 1895, and 7,130 tons in 1894. The average number of days worked during the year for each colliery was 177·64, or 11·6 days less than in 1895. The average cost of coal was $1.337 as against $1.329 in 1895. This slight increase was accounted for by the higher wages paid in 1896. This profit from the coal operations was nearly all made in the last six months of the year. Previous to that time the market was suffering from the extremely low prices caused by the unnatural competition and excessive production in 1895. If the higher prices received for coal had extended to the smaller sizes, or steam coals, as well, the results would have been much better. as 44% of our total output consists of sizes including pea and smaller. The mines are in good condition and capable of a much larger production should the market require it."

A New Electric Appliance.—The latest application of electric energy seems to be in the line of safe-blowing. To the average reader the headline "The Application of Electricity to Bank Burglary" over an illustrated article in one of the leading electrical journals gives a feeling that there is such a thing as giving too much publicity to some lines of development.

A Tunnel Under the Neva at St. Petersburg.—The Russian minister of public works is, it is reported, at present considering a project for the piercing of a tunnel under the river Neva. The projected tunnel would have a diameter of about 52 ft., and would be divided into four compartments, one for tramways, one for general vehicular traffic, one for foot-passengers and one for telephone and telegraph cables.

THE MINERAL PRODUCTION OF SPAIN IN 1896.

According to his usual custom, Señor Roman Oriol has prepared and published in the *Revista Minera* an interesting summary of the mineral production of Spain for the past year, from which the figures given below are obtained.

Silver.—The total production of silver in 1896 is estimated at 222,900 kg., showing an increase over the preceding year. Of this total 192,900 kg. were obtained from argentiferous lead. The only mines in which silver ores other than lead ores are found are in the Province of Guadalajara; these mines produced last year 30,000 kg. of silver.

Lead.—This is the most valuable mineral product of Spain, on account of the large quantity produced and the number of mines. A large part of the ores produced are exported as ores, but the amount of lead made in Spain is considerable. The total quantity of lead ores mined in 1896 was 320,000 metric tons, of which 162,600 tons were exported. The production of metallic lead, including the lead exported in ores, is estimated at 170,790 tons, an increase of 10,000 tons over the preceding year.

Quicksilver.—In the quicksilver mining industry the most notable event in 1896 was the installation of compressed air rock drills in the twelfth level of the Almaden mines. These mines produced 22,100 tons of ore during the year under review. In Asturias, El Porvenir Mining Company raised 7,065 tons of ore, the Union Asturiana 4,471 tons, and La Soterraña 670 tons. In Granada 800 tons were obtained. At Almaden 16,076 tons were smelted, yielding 41,330 flasks of quicksilver. The total quicksilver production of Spain amounted to 43,884 flasks.

Copper.—The copper industry continued its prosperous career in Huelva in 1896. The Rio Tinto Company extracted 1,440,000 tons of cupriferous pyrites. Adding to this the output of other mines, the ore product of the province of Huelva amounted to 2,800,000 tons. The province of Seville produced from the mines of Aznalcollar some 25,000 tons of similar ore, and the mine Profunda of Villamanin, in Leon, produced 1,050 tons of low-grade ore. The metallurgical treatment of the Spanish ores yielded 35,000 tons of precipitates with 75% of metal, and 23,000 tons of matte with 45% of metal. Besides these, 4,174 tons of sulphate of copper were produced by the Rio Tinto Company.

Zinc.—The center of the zinc industry is the province of Santander, where the Royal Asturian Company raised 24,000 tons of crude calamine from the mines at Reocin and 7,200 tons from the Udias and La Florida mines. From Reocin, also, 810 tons of blende were obtained. Zinc smelting is confined to the Arnao Works in Asturias, where the out-turn amounted to 6,000 tons of spelter.

Iron Ore and Iron.—The production of iron ore in Spain for the year 1896 was 6,808,000 metric tons, an increase of 1,293,671 tons, or 23·5% over 1895. The exports were 6,253,473 tons, a gain of 1,005,281 tons, or 19·2%. The production of pig iron in Spain was 246,326 metric tons in 1896, of which 23,805 tons were exported. The production of steel ingots was 104,577 tons, 62,511 tons being made by the Bessemer and 42,066 by the open-hearth process. The total production of wrought iron and steel in bars, plates and other finished forms was 137,809 tons. There were seven steel and iron works in operation during 1896.

Coal.—The production of coal in Spain for the year is given as follows, in metric tons:

	1895.	1896.	Changes.
Coal	1,739,075	1,830,771	Inc. 91,696
Lignite	44,008	44,000	Dec. 8
Total	1,783,083	1,874,771	Inc. 91,688

Of the coal in 1896 the Asturias produced 1,122,700 tons; Cordoba, 304,000 tons; Palencia, 132,000 tons, and Ciudad Real 100,000 tons. Of lignite Baleares produced 18,000 tons and Barcelona 15,000 tons.

Other Minerals.—Iron pyrites were mined and shipped by the Aguas Tenidas Company to the extent of 200,000 tons, a decrease of 40,000 tons from 1895. In manganese mining there was a remarkable gain, the production of manganese ores increasing from 10,162 metric tons in 1895 to 92,000 tons in 1896.

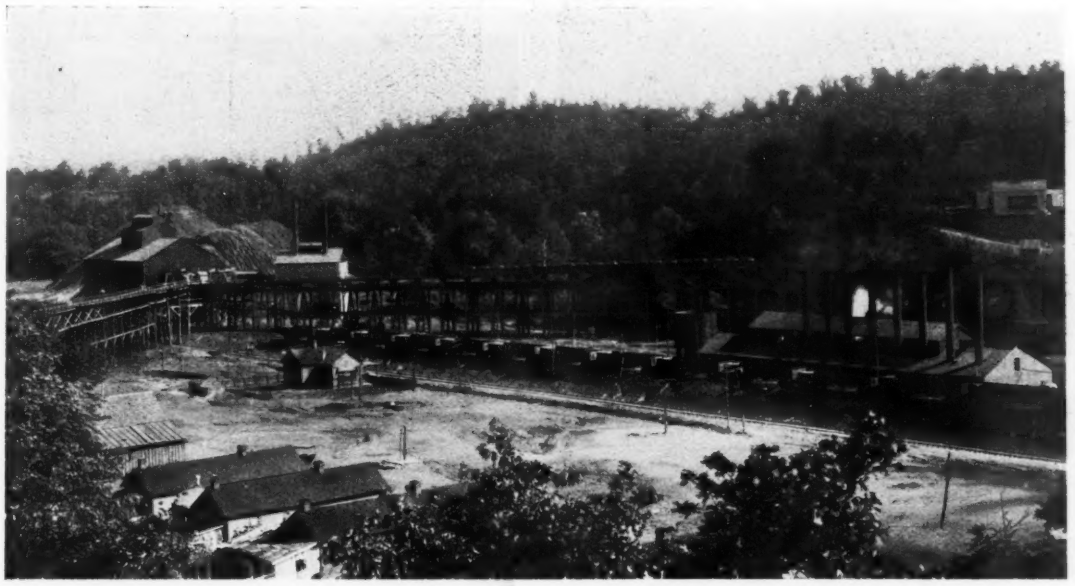
The production of salt amounted to 350,000 tons. The province of Gerona reports an output of 105 tons of barytes and 592 tons of soapstone. The production of fluorspar in Barcelona has almost ceased, only three tons being reported last year.

SMELTING IN THE ELECTRIC FURNACE.

According to an article in *Le Genie Civil*, of Paris, M. Heibling has for some time been engaged in experimenting with the electric furnace, his object being to ascertain how to apply electricity best to the smelting of metallic ores, and especially whether the smelting operation in the electric furnace could not be maintained continuously, as in the blast furnace. He early recognized the fact that the slags resulting from the fusion of the ores were usually poor conductors of electricity, and that their presence in the furnace was very apt to break the electric current and thus put a stop to the operation. He therefore sought to obtain a flux which would be a good conductor, and found that by using a mixture of lime and carbon he could obtain a slag which was a good conductor and would not interrupt the current. Moreover, he found that after separating the metal the slag remaining was not worthless, but was a carbide of calcium, very impure, it is true, but still having some commercial value.

Under the action of the heat of the electric arc a part of the carbon takes up the oxygen in the ore under treatment, while another part combines with the lime and with different contents of the ore, transforming them into carbides, which are fusible and are conductors of electricity. The fused carbides take up and hold the infusible portions of the ore in suspension, while the metal settles in the bottom of the furnace.

In some experiments recently made at Puteaux the mineral treated was chrome-iron ore from Boucau in the Basses-Pyrenees. In treating this without the flux, though a large quantity of electrical energy was expended, he obtained the metal only in the form of irregular strips or ribbons, and these were very brittle, breaking up from their own weight. By adding certain proportions of lime and carbon, however, he obtained from the same weight of mineral, with a smaller expenditure of electrical energy, a greater quantity of metal. Moreover, the metal was ferrochrome and was in the form of a compact lump or ingot; while the carbides which formed the slag or residue from the operation gave nearly 250 liters of acetylene per kilogram.



JOB'S MINE IN THE HOCKING VALLEY, OHIO.

JOB'S MINE, IN THE HOCKING VALLEY, OHIO.

Written for the Engineering and Mining Journal by Our Special Correspondent.

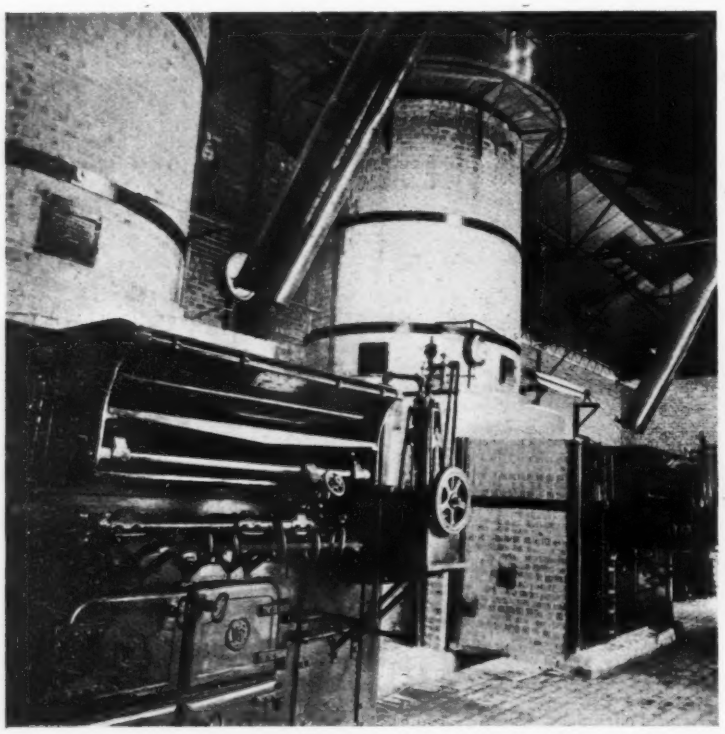
One of the largest producers of bituminous coal in the United States is the Job's mine of the Mount Morris Coal Company on the Columbus, Hocking Valley & Toledo Railroad, about 10 miles northeast of Nelsonville, O. This mine differs from most other mines in the Hocking Valley in that the tipple and outside works are built entirely of steel and iron. It is a new departure in the construction of coal mine plants as used in Ohio. The illustrations show the different steps in the process of erection. In common with most of the Hocking Valley operations, the tipple, coal bins and haulage-engine houses are built immediately over the railroad, while the coal is mined in a hillside right and left of the tipple. All the coal is above water level. The elevating and conveying machinery are driven by a rope transmission of six laps.

The tail-rope system of haulage as used at this place gives excellent results, the placing of the haulage engines and tipple in the valley between the two openings on either hillside affording especial opportunities for the economical operation of the system of haulage by tail-

rope. The workings are very extensive, and require a large expenditure for haulage. Two tail-rope engines of the Nelsonville type pull the loaded mine cars from each opening to the tipple. As the speed of rope and load to be hauled was limited, in one opening, it became necessary to use further haulage in addition to the tail-rope. For this purpose an electric locomotive of 80-H. P. pulls the coal from the face of the main entry to the extremity of the tail-rope, a distance of 3,000 ft., while the tail-rope pulls the coal to the tipple, a distance of 3,000 ft. more. The locomotive and tail-rope haul the coal on the main entry alone, while horses pull the coal out of the cross-entries to the motor, a distance of about 2,000 ft. The average trip for the tail-rope is 40 cars of 3,000 lbs. gross weight, hauled up a 2% grade.

Two Cook vertical tubular boilers, of 250 H. P. each, generate steam for running the haulage engines, pumps, blowers, and elevating and conveying machinery. They are covered with firebrick and each is fitted with the Roney mechanical stoker. The buckwheat coal used in firing them is brought from the elevator bins by a flight of buckets 120 ft. in length, and is fed into iron bins directly over the boiler, from which the fuel is fed as required. The ashes and refuse are dropped into a trough 2 ft. in depth by 2 ft. in width, from which they are taken by a conveyor belt. The entire apparatus requires only occasional attention, being under the care of the operator of the tail-rope engines, by the side of which it is placed.

The use of vertical tubular boilers as producers of steam at coal mines is not common, but where economy of space is a desideratum they are occasionally employed. Where the water is good they should prove successful. In addition to the vertical boilers this plant has 16 boilers, of two 16-in. flues each, and 4 ft. by 24 ft. These boilers furnish steam for the three Norwalk air compressors and engines driving the generators of electric power. As these boilers are in one long row the fuel, buckwheat



VERTICAL BOILER AND MECHANICAL STOKER, JOB'S MINE.

coal, is brought to them by means of a small tail-rope system. This small tail rope also conveys the ashes and refuse from these boilers to the waste heap.

A Buckeye engine of 150 H. P. drives two Edison generators of 60 kw. each, and a McEwen engine of 240 H. P. drives a Thompson & Ryan generator of 150 kw.

Three Norwalk compressors, two 20 by 24 in. and one 26 by 30 in., furnish power for the six Jeffrey cutter bar machines and the Harrison pick machines.

The slack and refuse remaining after screening the coal is conveyed to a 10-in. pipe by which it is blown a distance of 300 ft. to the waste heap, by a Root blower. There is quite a large waste heap at this mine.

A modification of the Mitchell tipple is used for dumping the cars. The angle at which the car is dumped and the speed of dumping is regulated by the admission of steam into a vertical cylinder placed directly under and attached to the tipple.

The coal is worked by room and pillars, double entry. From 90 to 95% of the coal in the bed is won; all pillars are robbed, as the roof is good. Surveys are made and platted every month, and a blueprint of the map made and placed in the hands of the mine manager. The out-crop of the vein is distinctly laid down on the mine map.

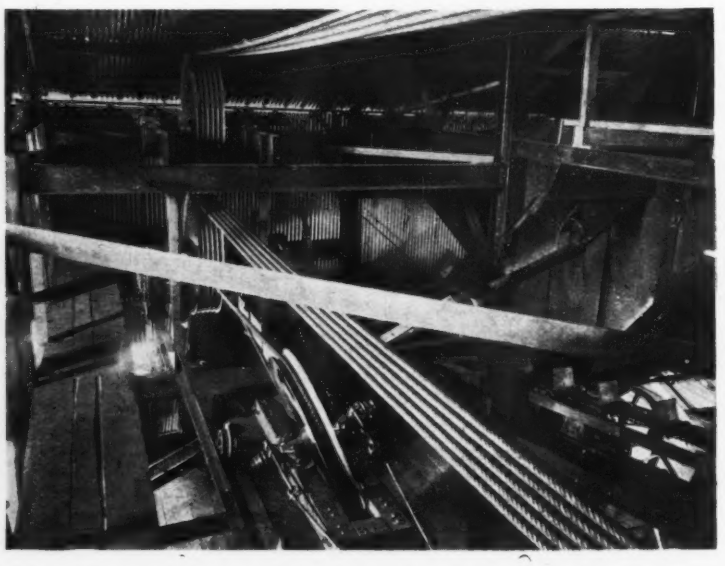
The list of mining machines in use includes 15 of different types. One Ingersoll and one Harrison pick machine are employed; two chain electric cutters and eleven cutter-bar machines. Of the latter, four are run by electricity and seven by compressed air. In addition to the coal-cutters the locomotive above referred to is run by the electric plant.

Probably no coal operation west of Pennsylvania produces as great an output of coal per day as does Job's Mine. As high as 4,800 tons of coal have been loaded in one day over the single tipple at this place. The average daily output, when both slopes are in operation, is 3,500 tons of coal.

SEPARATION OF GOLD AND SILVER FROM LOW-GRADE BULLION.

Written for the Engineering and Mining Journal by F. Gutzkow.

It is well known to metallurgists that the parting of highly cupriferous silver bullion—that is, its separation into gold, silver and copper—presents considerable difficulties. Neither the electric nor the sulphuric acid process works satisfactorily on this kind of bullion. It has, therefore, become the general practice of mine owners in the United States to sell such bullion to lead-smelting works where the bars are added to the silver-lead in the cupelling furnaces. The copper is removed by cupellation and the silver doré which remains is parted by one of the usual processes. As far as I know this method is purely American, and is not practised extensively in Europe on account of the loss of silver by cupellation. In this country, however, where the refiner receives his refining charge per gross ounce, that is, for both silver and copper, and pays little or nothing for the copper, there is generally sufficient margin left to compensate for losses. A refining charge of ½c. per gross ounce on bullion of, say, 500 fineness, is equal to 1½c. per ounce of silver, or, at the present silver prices, to 2½% of the silver value, not to mention the value of what copper is recovered from the litharge in the ordinary course of the smelting process. Thus, the refiner is justified in his faith that everything will turn out well in the end, as far as his own pocket is concerned. But the miner has to bear still other losses in producing low-grade bullion. The express companies charge for the transportation of such bullion by the pound, and thereby make themselves pleasantly independent on the silver question. A pound of copper traveling as bullion in an express car from, say, Montana to Pittsburg soon outrides its value. Thus, all the copper in the bullion is spent in railroad fare. This is not all, however. The miner requires bluestone or copper sulphate for his amalgamating pans; that is, a compound containing 25% of copper and nearly 40% of water. In fact, a good deal, if not all of the copper in his bullion, comes from this very bluestone. So the whole amount of cop



ROPE TRANSMISSION FOR ELEVATOR, JOB'S MINE.

per for which the miner has paid ½c. per gross ounce to the refiner in order to separate and keep it, is reshipped by the latter as bluestone at an advanced figure to where it came from, the railroad dipping once more into the miner's pocket.

To recapitulate, the miner instead of getting anything for his copper presents it to the refiner and pays its full value three times: 1. To the express company for transportation. 2. To the refiner for separating it from the silver. 3. To the same or some other refiner in purchasing bluestone. For large producers this amounts to quite a large sum. For instance, when a few years ago a certain great mine in Montana produced per year between 3,000.000 and 4,000,000 oz. of silver, all in coppery bullion of about 650 fineness, the game described between miner and refiner cost the company annually about $50,000. Considering the facility and cheapness with which sulphuric acid is now shipped by railroad in iron drums of 30 or more tons' capacity, mining companies whose reduction works are situated at a railroad station can refine their coppery bullion on the spot at less than they pay the refiner, saving liberally in express charges, and getting their bluestone as a by-product for nothing—provided that the difficulty, mentioned above, of refining low-grade bullion by sulphuric acid is overcome.

In order to achieve this, I have lately adapted my process of parting doré silver, which has been mentioned in the *Engineering and Mining Journal* before, to the treatment of coppery silver bullion. The difficulty consists in the fact that while silver sulphate is readily soluble in sulphuric acid in all proportions, copper sulphate is not. In the ordinary process, as it is, for instance, practised at the United States mints, when coppery bullion is boiled with three or even four times its weight of sulphuric acid, the metal gets soon covered or incrusted with insoluble copper sulphate and the action stops. It is economically not possible to use more acid as a solvent, because the whole acid is lost. Its recovery after it has been diluted with water to about 25° Beaumé, as is required by the subsequent steps of that process, does not pay for the trouble and expense.

The idea on which my process is based is, to employ for dissolving the bullion enough acid to keep the copper sulphate dissolved, and to recover the excess of acid in such a state that it can be directly used over. For one part of copper which the bullion contains, I use about 20 parts of acid.

This acid must be kept slightly diluted during dissolving. If it is allowed to concentrate into H_2SO_4, the whole of the dissolved copper sulphate will be precipitated as a crystalline powder. The solution contains then only silver sulphate, which can be separated in the shape of large and hard crystals when the solution, after being slightly diluted by water, is allowed to cool. The mother-liquor therefrom mixed with so much fresh concentrated acid as has been chemically consumed serves for dissolving another batch of bullion. The process is much favored by the silver sulphate which the mother-liquor still contains, because it increases the solubility of the copper sulphate.

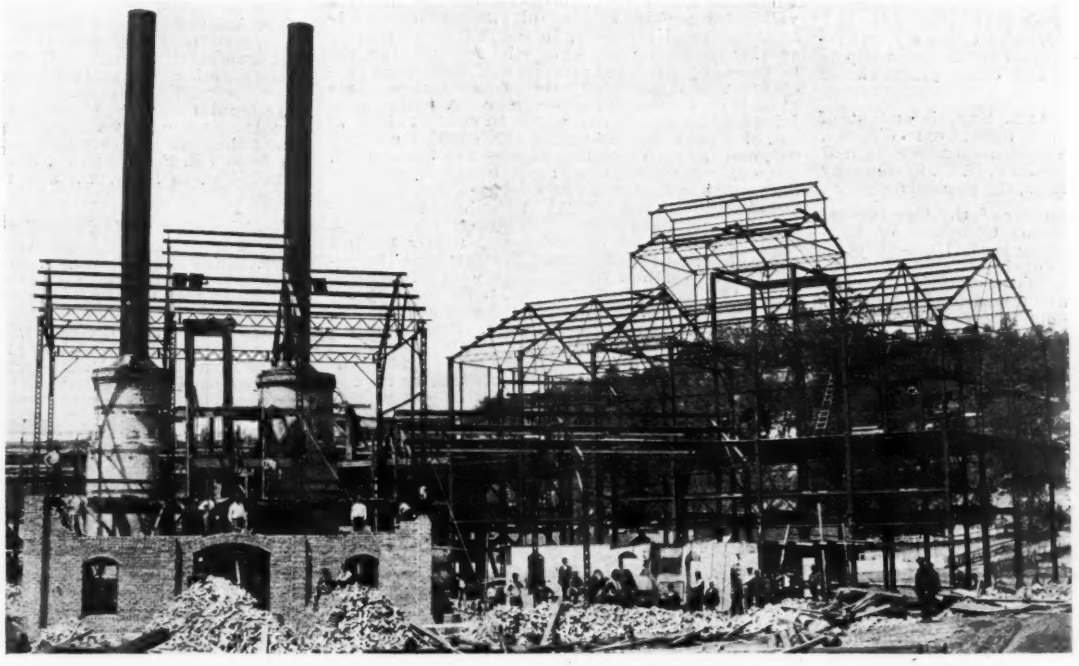
The apparatus consists of a cast-iron pan, which is mounted over a fireplace. Its capacity and all other conditions of the process are made dependent on the principle of dissolving a certain weight of copper in the bullion in a certain time. For instance, to dissolve 100 lbs. of copper in one operation of six hours, room is required in the pan for 20 × 100, or 2,000 lbs. of acid, corresponding, with the spare space necessary for working, to about 24 cu. ft. It does not make much difference how much silver the copper carries. If the bullion is ·666 fine, that is, contains 2 parts of silver for one of copper, I can work in one pan in four operations during 24 hours 1,200 lbs. of bullion, but only 800 lbs. if the bullion is ·500 fine. Reversing the order of the ordinary process, the silver plays only a secondary role.

Preferably, although not necessarily, the process is carried on continuously, day and night, divided in as many operations per 24 hours as the local conditions demand. The bullion is not weighed out for each operation, as is done in the ordinary process. There is always enough of it in the pan, so that the acid finds abundant material and surface to work on. The bars having been suitably arranged, so much concentrated sulphuric acid of commercial strength is run into the pan from a reservoir as the bullion to be dissolved in one operation requires, or experience shows to be consumed, chemically or otherwise; say two parts for one of bullion if the latter is ·666 fine; somewhat more if it is more base; somewhat less if it is finer. Heat is now given. As soon as the acid is hot enough to act quickly on the metal, diluted acid of about 62° Beaumé, that is the mother-liquor which, as described above, was left behind from the crystallization of silver sulphate by a previous operation, is admitted in a continuous small stream or periodically whenever by evaporation the acid has become so concentrated that copper sulphate commences to separate. When the regular volume of mother-liquor, which is reserved for each operation, has been spent and as much copper has been dissolved as possible, the acid is allowed to concentrate. Copper sulphate is precipitated, carrying with it all suspended matter, gold, insoluble sulphate of iron, lead, etc. The fire is now banked and the clear solution of silver sulphate is siphoned off into a wrought-iron pan resting on a lower level. Here it is diluted, first by adding the diluted acid caught from the fume condensers, then by cold distilled water or by a steam jet, until a test shows that the silver sulphate will separate as a yellow monosulphate, and is allowed to cool. It is not necessary to cool to a low temperature, as the great bulk of silver sulphate will separate above 180° Fahr. The mother-liquor is utilized as has been described. The crystals are washed with water, the first liquor being reserved for helping to dilute the concentrated silver acid solution of another operation. They are then mixed with charcoal and melted into fine silver; or they may be reduced to metallic silver by the precipitated copper obtained elsewhere in the course of the process.

To the pan, after the silver solution had been siphoned off, there is now added from the reservoir as much cold concentrated commercial acid as previously at the beginning of the first operation. The temperature having been reduced, the bulk of the precipitated copper sulphate is scraped into a corner of the pan, yielding during this manipulation most of the adhering silver sulphate to the fresh acid. It is then removed by an iron ladle and thrown into a lead-lined tank containing water and boiled by steam until there results a saturated solution of copper sulphate, which is run off for crystallization into bluestone. The tank must, of course, contain some cupriferous matter, scraps of bullion, for instance, in order to precipitate all silver sulphate which may be present into metallic silver. The residue contains, beside this precipitated silver, all the gold which the bullion did contain, insoluble sulphates of other metals and scraps of bullion. It is occasionally taken up and, after having undergone the customary manipulations, is melted into a doré bar which may be shipped or parted in the usual manner. The bluestone is mixed with coal and melted into metallic copper, if it cannot be utilized otherwise. In the pan the bullion is replenished, the fire is revived and diluted acid is admitted as before. The remnant of copper sulphate which has escaped from the scraper dissolves and the process goes on as described.

It will be readily understood that it is not necessary to remove by each separate operation more than the bulk of the sulphates of copper and silver. More or less of these sulphates may pass from one operation to the next. Furthermore, it is evident that only so much acid is consumed as the chemical reactions require, beside what may adhere to the respective sulphates.

There are some details of importance omitted because they will not interest the general reader; for instance, the construction of the apparatus, the shape and arrangement of the bars of bullion, etc. Besides, if some friend of metallurgy abroad wishes to improve on the idea, it will be better that he be not hampered by too many details.



BOILERS AND BUILDINGS UNDER CONSTRUCTION, JOB'S MINE, OHIO.

The Oldest Iron Bridges in Europe.—According to Herr Mehrtens, in *Stahl und Eisen*, the French engineer Desagliers designed an iron bridge very early in the 18th century, and in 1719 Garrin made plans for an iron bridge over the Rhone at Lyons, but the cost was considered too great, and a wooden bridge was built. Again in 1775–79 Goiffon, Calippe and de Montpetit made plans for an iron bridge of a single arch over the Rhone. The first iron bridge actually built in England was the well-known cast-iron arch over the Severn at Coalbrookdale. The first iron bridge on the Continent of Europe was built at Laasan in Silesia in 1796; it is an arch of cast iron, made in sections keyed together and strengthened by radial braces. It has 12 m. span and a roadway 5·90 m. wide. This bridge is still standing and in good condition. The oldest iron bridges in France are the Bridge of Arts at Paris, which dates from 1804, and the Bridge of Austerlitz, which was begun in 1801 and completed in 1806.

The Production of Electricity by Chemical Means.—For some time, says the London *Electrical Review*, E. Andreoli has been engaged in investigating the behavior of primary batteries, which depend, as regards their action, upon the continuous oxidation of hydrogen, carbon-monoxide, etc. Although his results have been for the most part of a negative nature, they are none the less valuable on that account, inasmuch as it is often as useful to know that a thing cannot be done as that it can. During a portion of his investigation, he has been collaborating with Borchers, and together they have fixed upon the weak point in the batteries with which they have experimented. This consists in the use of electrodes, which become dissolved as the battery acts. They have both come to the conclusion that success with such batteries may only be secured by discovering and employing electrodes which do not pass into solution during the oxidation of the gas which is used in the battery; it remains, therefore, for themselves or others to discover and apply such electrodes. A full account is given of these later investigations in the *Zeitschrift für Electrochemie*, Vol. III., pages 186 to 189. It is of interest to note in this connection that Dr. Jaques, whose experiments have attracted attention, has gone to Europe to pursue some further researches.

PERSONAL.

MR. JOHN B. DAVIS assumed charge, this week, of the Delaware & Hudson collieries between Pittston and Wilkes-Barre, Pa.

MR. ROBERT BOYD, of Huntington, has been appointed State Mine Inspector of Arkansas, to succeed MR. HARRY MCMULLEN.

SIR CHARLES ROSS, Bart., who is largely interested in the Center Star mine, Trail Creek, is visiting Rossland in connection with his mining investments.

MR. WILLIAM G. LUCKHARDT, mining and civil engineer, of San Francisco, has been appointed secretary of the Mariposa Electric Power Company, vice MR. GEO. L. ECKER, resigned.

MR. EDMUND KENT, late chief mechanical engineer, for the Anaconda Copper Mining Company, of Butte, Mont., has accepted a similar position with the Boston & Montana Company.

MR. FRANK YEOMAN, who was for two years chief engineer for the Boston & Montana Mining Company, has taken the same position with the Elkhorn Mining Company, of Jefferson County, Mont.

MR. J. B. MILLER, who has extensive mining interests in Kootenay, B. C., and who is the general manager of the Pug mine, near Waneta, has gone on a business trip to the Eastern States and provinces.

COLONEL REDPATH, a prominent shareholder and director of the Le Roi Mining Company, has returned to Rossland, B. C., from an extended trip to Everett, Tacoma, Olympia and other places on the Pacific coast.

MR. GEORGE A. SONNEMANN, Superintendent of the Bunker Hill & Sullivan mine, Cœur d'Alene, Idaho, has been making a thorough examination of the War Eagle mine at Rossland, B. C., in company with MR. JOHN B. HASTINGS, the general manager.

MR. A. PRINXHORN, manager of the Continental Caoutchouc and Gutta Percha Company, of Hanover, Germany, is now visiting in the United States. Mr. Prinxhorn is a member of the societies of Chemical Industry, Applied Chemistry and Engineers in Germany. During his stay in America he will investigate our industrial enterprises and the progress that has been made in them of late, and this data he will present to the societies with which he is connected when he returns to the other side. At present he is in New York.

OBITUARY.

F. W. CROSSLEY, who died in England March 25th, aged 57 years, was head of the firm of Crossley Brothers, Limited. He was largely instrumental in the introduction of the gas engine into Great Britain, having taken up the manufacture of the Otto engine in 1870. He had much to do with its improvement and development, and was the first to make the large engines of this class now in use.

EDWARD DRINKER COPE, one of the most noted naturalists in this country, died at Philadelphia April 12th. He was professor of comparative anatomy and zoology at the University of Pennsylvania, with which institution he had been connected since 1889. Professor Cope was born in Philadelphia in 1840, and was educated in the University of Pennsylvania, subsequently studying comparative anatomy at the Academy of Sciences, at the Smithsonian Institution and in Europe. In 1864 he became professor of natural sciences at Haverford College, resigning three years later to become palæontologist to the United States Geological Survey, first serving in the Territories and then west of the one hundredth meridian. While engaged in this work Professor Cope discovered nearly 1,000 new species of extinct and as many recent vertebrata. He was a member of numerous scientific societies in the United States and Europe, and in 1879 received the Bigsby gold medal from the Royal Geological Society of Great Britain. In 1872 he was elected a member of the National Academy of Sciences, and in 1884 was vice-president of the section in biology of the American Association for the Advancement of Science. In December, 1889, he became professor of deology and palæontology in the School of Biology in the University of Pennsylvania at Philadelphia, a position he held up to the time of his death. Professor Cope has written upwards of 350 papers, which form a systematic record of the development of palæontology in the United States. His researches secured for him valued marks of distinction from several European institutions of learning.

SOCIETIES AND TECHNICAL SCHOOLS.

CANADIAN SOCIETY OF CIVIL ENGINEERS, MONTREAL.—At the meeting on April 8th, 1897, a paper on "The Fraser Valley Reclamation" was read by Mr. R. E. Palmer.

ENGINEERS' CLUB OF PHILADELPHIA, PA.—A business meeting will be held at 1122 Girard street on April 17th, at which Mr. Charles F. Scott will read a paper on "The Installation of the Niagara Falls Power Company."

AUSTRALASIAN INSTITUTE OF MINING ENGINEERS.—The following are the officers and council for 1897: President, F. Danvers Power, Sydney. Vice-presidents, H. W. F. Kayser, Waratah; J. Warren, Broken Hill; H. H. Schlapp, Melbourne. Council, R. Adams, Broken Hill; A. J. Hodgkinson-Carrington, Melbourne: A. Montgomery, Auckland; H. H. Knapp, Melbourne; F. G. Davey, Harrietville; G. G. Turri, Melbourne; H. R. Hancock, Moonta; E. J. Rigby, Melbourne; A. G. Holroyd, Kalgoorlie; Uriah Dudley, Menzies; J. Howell, Illawarra; E. A. Ashcroft, Newcastle. Treasurer, H. Rosales, Melbourne. Secretary, A. S. Kenyon, Melbourne.

COLORADO SCIENTIFIC SOCIETY.—At the largely attended meeting of this society on April 3d, an interesting paper was read by L. S. Austin, of Denver, on the Smith & Thompson assay balance. Mr. R. C. Hills, the geologist of the Colorado Fuel and Iron Company, also read a paper on the Oscura Meteorite found a short time ago in the east foothills of the Oscura Mountains in Socorro County, N. Mex., which was very interesting. There were three irregularly shaped specimens respectively weighing 1¼, 3¼ and 3½ lbs., which had been cut in slabs for examination. The analysis showed the following result: Iron, 90·79; nickel, 7·66; cobalt, ·57; phosphorus, ·27; carbon, ·07; total, 99·36%. Many of the leading metallurgists, mining engineers and assayers of Denver and contiguous territory were present.

CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—A regular meeting was held April 5th. Mr. Munster, at whose instance some experiments on the shearing value of wire nails in pine planks have been made at the State University, introduced Mr. Walker and Mr. Cross, the students who are making the tests. They displayed samples and gave some general results of about 200 tests of the various sizes of nails in white and Norway pine. A white pine joint held by one 6d. nail begins to yield at about 70 lbs. of shear and gives way at about 160. Held by a 60d. nail the corresponding figures are 370 and 820, the maximum figure in all cases being about twice that which indicates the point of yielding. Roughly the strength of the joint is the cube of the diameter of the nail into 50,000. The largest nails can be driven 1⅛ in. center to center and nearly the full value of the nail is effective. For instance the result for one 50d. nail to the joint was 347 and 800, while the average of nine 50d. nails to the joint was 294 and 790. These experiments will be extended and the results tabulated. President Hilgard read a few notes on the generally overlooked centrifugal and wind forces which a pile bridge has to resist and laid out considerable matter for discussion at the next meeting.

INDUSTRIAL NOTES.

The Carnegie Steel Company is asked to make the armor plate for two battleships of the first class for Russia.

The Troy Steel Company's works on Breaker Island, N. Y., were started this week, and from 900 to 1,000 men will be employed.

The Ontario Zinc Company, of New York City, certifies to the Secretary of State that it has increased its capital stock from $100,000 to $200,000.

The Longmead Iron Company and the Conshohoken Tube Company, of Conshohoken, Pa., have gone into the hands of receivers. The liabilities will amount to about $300,000. The assets will not be over $150,000.

The Cambria Iron Company has given orders for the reshipment of its stock from No. 1 Furnace at Gaysport, Blair County, to Johnstown, Pa. This order is construed to mean the abandonment of the furnace, which is considered the best of the 17 old-time blast furnaces in Blair County.

The Southwark Foundry and Machine Company, of Philadelphia, is reported to have secured an order from Russia to build four large blast furnace blowing engines of the vertical compound disconnected type. They are for two blast furnaces which are at present under construction in Russia.

The Pottstown (Pa.) Iron Company held a meeting of stockholders on April 13th, at which it was decided to increase the capital stock of the company by the issue of $200,000 first preferred 7% cumulative stock, and by $1.100,000 second preferred 5% cumulative stock. Proxies for a sufficient amount to carry the above were voted.

The Altoona Iron Company, the Portage Iron Company, of Duncansville, the Hollidaysburg Iron and Nail Company and the Eleanor Iron Company, the four leading iron concerns in Blair County, Pa., are making efforts to form a pool for the manufacturing of mill iron. The Cambria Iron Company furnace at Gaysport may be operated by the joint interests.

The Illinois Steel Works, at South Chicago, resumed operations April 12th. One hundred rail finishers, whose striking involved 2,500 men, were not re-employed. The finishers were not upheld by the officials of their union, and as a result their places were filled. The 2,400 men in other departments returned to their labors and the mills are now in full blast.

The Boston Bridge Company, Waltham, Mass., whose plant in Cambridge was burned a few months ago, is preparing to erect three buildings. The length of the main workshop will be 416 ft. by 257 ft. in width. The building will be fireproof. One of the other buildings will be devoted to the office force, the other will be a power station, furnishing 500 H. P. The concern will give employment to 500 men.

The Michigan Pipe Company, of Bay City, Mich., the largest manufacturer of Wyckoff pipe and of wooden pipe in the world, recently started the new plant which was rebuilt on the site of the extensive plant that was entirely destroyed by fire on December 8th, 1896. The factory began work on a large order of mine pipe for the Excelsior Gold and Silver Mining and Milling Company, of White Hills, Ariz.

The Reading Steel Company has been organized by Philadelphia and Pottstown men, with a capital of $20,000, to operate in Reading, Pa. The incorporators are Clement G. Smith, Philadelphia; E. B. Leaf, J. S. Robeson, Henry Potts and Joseph Hartshorne, Philadelphia. They will apply to the State Department for a charter on May 7th. They have rented the plant of the defunct Diamond Steel Company, Riverside, with the privilege of purchasing it at the end of their lease. The new company will manufacture a high grade of steel.

The American Engine Company of Bound Brook, N. J., seems to be enjoying quite a boom under the management of Mr. Frank H. Ball. Since the first of the year it has been found necessary to increase the capacity of the works, and now they are installing a regular all-night working force, so that their establishment will run night and day. Among the recent shipments they report eleven moters ranging from 5 H. P. to 50 H. P., five dynamos ranging from 9 k. w. to 25 k. w., and two American-Ball engines.

The Worcester & Marlboro Street Railroad Company, of Worcester, Mass., is erecting at Northboro, Mass., a new power station. The engine-room is 55 ft. wide and 63 ft. long, and the boiler room is 45 ft. wide and 40 ft. long. The roof, which is to be gravel on plank, is supported by steel trusses. Cutting & Bardwell, of Worcester, Mass., are the general contractors for the work, and the steel work will be erected by the Berlin Iron Bridge Company, of East Berlin, Conn.

TRADE CATALOGUES.

The Nordberg Manufacturing Company, Milwaukee, Wis., is the builder of the Nordberg Corliss engine, and in its descriptive catalogue gives detailed explanations of the construction of the engine, with drawings and views of the various parts. Several views are given of plants that have been installed by the company in widely separated localities of the country for electric lighting and power, air compression, mining and other purposes. The Eastern representative of the company is Robert H. E. Porter, 150 Broadway, New York.

James L. Robertson & Sons, New York, manufacturers of the Robertson-Thompson indicator and other instruments, have published a new edition of their catalogue, in which special attention is given to this indicator. It has been a standard type for years, and is everywhere recognized as a perfectly accurate instrument, which will remain so indefinitely with ordinary usage. Other instruments listed are reducing wheels, planimeters, damper regulators, feed-water heaters, shaking grate bars, exhaust-pipe heads, waste oil filters, steam separators and oil extractors.

The Lidgerwood Manufacturing Company, New York, has sent out a catalogue descriptive of the Temperley Transporter and Lidgerwood Transfer, three hundred of the former having already been made and sold. They are adapted for use in coal wharves, discharging and coaling vessels, gas works, quarries, brick yards, cement works, stock heaps, coal sheds, collieries, etc. The Temperley Transporter is a hoisting and conveying device, employing a suspended beam as a trackway. The transporter carriages are made in various sizes and patterns, adapted to work not only on beams, but on suspended cables, or other forms of track, either inclined or horizontal, according to the requirements of the case.

The Nelson-Newman Company, Chicago, Ill., sole manufacturers of the N. & N. reversible grate bar, have set forth the merits of their invention in a little pamphlet that is just at hand. The claims made for the grate bars are: (1) They insure complete combustion, therefore even steam pressure, prolonging life of boilers and machinery; (2) ther is no possible chance of dumping good coal into th ash pit, therefore you get the full benefit of every pound of coal burned; (3) when grates are choke with clinkers, by simply turning each bar one revo lution, you have practically a new set of bars in the furnace; as the bars have four sides it is an easy matter to keep the grates clean at all times, without the aid of a slice bar; (4) they save 90% on repair bill.

NEW PATENTS.

UNITED STATES.

The following is a list of the patents relating to mining metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

WEEK ENDING APRIL 6TH, 1897.

579,945. APPARATUS FOR SEPARATING GOLD FROM WASH. Thomas M. Baldwin, Dunedin, New Zealand. Patented in New Zealand August 20th, 1892, No. 5,728; in New South Wales, October 5th, 1892, No. 4,018; and in Victoria, October 15th, 1892, No. 10,044. The combination of a sluice-box which widens gradually toward the discharge end, the box having upon its bottom transverse ribs upon which rests a removable false bottom.

579,988. PROCESS OF PRODUCING METALLIC CYANIDES. Carl Kellner, Vienna, Austria Hungary. The process consists in decomposing a suitable nitrate or nitrite by the heat of and in an electric arc between carbon electrodes.

579,998. CHROME BRICK. Niven McConnell, Munhall, Pa. A brick composed of chrome ore containing about 25% of a refractory clay.

580,020. PROCESS OF PRODUCING GAS. Elihu Thomson, Swampscott, Mass. The process consists in first passing air through a mass of incombustible, inert material in which heat has been stored; then passing the air so heated through a fire-space into which is continuously fed, from a suitable supply source, oil, or hydro-carbon in a liquid or vaporous state, in excess.

580,029. ORE STAMPING MILL AND PULVERIZER. Alfred H. Wolfe and John D. Weatherbee, Denver, Colo. The stamps are driven by two shafts with alternate cranks.

580,030. ORE CONCENTRATOR. George E. Woodbury, San Francisco, Cal. The combination of the stationary frame, the shaking frame, the concentrating belt, with a lateral motion to the frame.

580,073. WAVE-POWER AIR-COMPRESSOR. William A. Williams and Herrick H. Tuller, San Francisco, Cal. The combination of a suitable frame, a vertically-movable float, an air-compressing pump constructed of a stationary top section, and one or more telescopic sections each provided with a piston-head.

580,115. CRUSHING MILL. Heinrich C. Mecke, Hamburg, Germany. The combination with a cross-piece secured to the vertical grinding-spindle, of a plurality of grinding rollers suspended in ball-and-socket joints from the cross-piece and a driver.

580,131. MANUFACTURE OF STEEL. Alfred E. Hunt, Pittsburg, Pa. The process consists in adding to the steel after it has been melted and refined a small portion of aluminum alloyed with a more electro-positive metal.

580,162. DRY ORE-DRESSING AND GOLD-SEPARATING APPARATUS. Charles Phillips, South Yarra, Victoria. Assignor of three-fourths to John McAlister Howden, Melbourne, Victoria. Patented in New South Wales July 4th, 1889, No. 1,521, and August 9th, 1892, No. 3,893; in Victoria August 3d, 1892; No. 9,843; in Queensland August 11th, 1892, No. 2,136; in South Australia August 25th, 1892, No. 2,289; in Western Australia September 8th, 1892, No. 367, and in New Zealand July 4th, 1895, No. 7,728. The combination of a frame, an endless belt and rollers on the frame for directing the belt and for giving it an incline.

580,235. MINERS' COMBINATION-TOOL. Alfred Strum, Wickes, Mont. The combination with a handle, comprising the sides, a slotted strip, and a slotter block, of the slide, the arms bent over the same and projecting through the slot in the strip and the ends bent at right angles in opposite directions, and the slide formed with a concave cutting edge and a concaved jaw.

580,289. MINING DREDGING APPARATUS. Peter J. Gildea, San Francisco, Cal. The combination of a suction-pipe, a screen-chamber inclosing the mouth of the suction-pipe and reciprocating pieces operating through the holes or meshes of the screen-chamber to keep them clear.

580,338. CONCENTRATOR. Arthur R. Wilfley, Denver, Colo. The combination with a suitable frame of a transversely-inclined table and trough, with suitable machinery for giving motion to the table.

580,334. PROCESS OF MANUFACTURING STEEL, ETC. Charles H. Foote, Chicago, Ill. The process consists in first producing spiegel or ferro-manganese in a smelting-furnace and thereafter, without remelting the spiegel or ferro-manganese, adding the same to the charge of a Bessemer converter or open-hearth furnace.

580,344. UNITING OR WELDING METAL. William Griffith, Pittsburg, Pa. Assignor, by mesne assignments, of one-half to James Andrews, Allegheny, Pa. The process consists in cleansing one of the plates from scale, oxide, or other impurities, then coating or covering one or more faces of this plate with a metal or an alloy thereof having a lower fusing-point, then applying to this coated surface a plate of metal or an alloy of the same character as the coating, but free from any coating, then applying heat to the two plates, and finally uniting by pressure.

580,346. APPARATUS FOR SEPARATING METALS FROM THEIR ORES. Charles O. Michaelsen, Denver, Colo., Assignor of one-half to David F. Bowen, same place. The combination with an upright tank or barrel, of a rotatable screw or conveyor.

580,352. ROCK-DRILL. Thomas Symonds, Leominster, Mass.; Arthur H. Folger, Administrator of said Symonds, deceased. A rock-drill having five lips united together at and radiating from the center, each lip having a straight cutting edge.

GREAT BRITAIN.

The following is a list of patents published by the British Patent Office on subjects connected with mining and metallurgy:

WEEK ENDING FEBRUARY 20TH, 1897.

1,934 of 1896. C. B. Walker, Ulverston. Apparatus for cleaning gauzes of miners' safety lamps by brushes and air current combined.

5,225 of 1896. W. Hutchinson, Manchester. In blast furnaces the use of a separate chamber for receiving the iron from which the slag overflows.

6,096 of 1896. D. A. Pemakoff, Huys, Belgium. Making aluminate of barium and strontium by calcining sulphate of barium and strontium with alumina and sulphide.

9,575 of 1896. The Ingersoll-Sergeant Drill Company, New York, U. S. A. Rotating devices for rock drills.

18,417 of 1896. C. Phillips, Melbourne, Victoria. Dry shaking tables.

28,609 of 1896. L. Cohn, Breslau, Germany. Device for showing the relative amount of oxygen in the air of mines.

29,954 of 1896. A. W. Goyder, Hillgrove, New South Wales. Improved form of shoots for feeding ore to stamp mills.

WEEK ENDING FEBRUARY 27TH.

2,678 of 1896. J. G. Wilborgh, Stockholm, Sweden. Making apatite more soluble by heating it with soda.

2,931 of 1896. J. S. Wallace, Belfast, and J. C. Evans, London. Reducing complex sulphides by means of iron and carbon.

4,082 of 1896. W. Ackroyd and W. Best, Morley. Method of electrically lighting miners' lamps.

25,133 of 1896. A. Macdonald, London. Making sulphide of lead pigment by blowing air and steam on the surface of molten galena.

26,066 of 1896. D. White and T. M. Simpson, Stowell, Victoria. Pumping compressed air or other oxidizing gas into cyanide vats to hasten solution.

26,490 of 1896. G. Dillberg and W. Walker, Sydney, New South Wales. Revolving amalgamator, where the pulp is forced through a wall of mercury.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the *Engineering and Mining Journal* of what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind, and forward them catalogues and discounts of manufactures in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the *Engineering and Mining Journal* are not brokers or exporters, nor have they any pecuniary interest in buying or selling goods of any kind.

GENERAL MINING NEWS.

OIL EXPORT.—The Bureau of Statistics, Treasury Department, reports the exports of mineral oils from the United States during March, 1897, as follows: Crude, 12,341 940 gals.; naphthas, 1,129,322 gals.; illuminating, 59.824,074 gals.; lubricating and paraffin, 4,138,395 gals.; residuum, 139,230 gals.; total, 77,572,961 gals. This total compares with 64,260,114 gals. for March, 1896, showing an increase of nearly 8·3%. The exports of mineral oils in the first three months of 1897 amounted to 210.957,470 gals., against 199,910,123 gals. for the same period in 1896; an increase of about 9½%.

OIL PRODUCTION AND NEW WELLS.—According to the Oil City *Derrick* there were completed during March, 1897, 368 new wells in the New York, Pennsylvania & West Virginia field, which had a daily capacity of 5,615 bbls., and at the end of the month 739 wells were under the drill. In the Buckeye (Ohio) field 210 new wells were completed in March, which had a daily production of 4,820 bbls., and on April 1st 302 wells were being drilled. The Southeastern Ohio field showed 46 new wells completed in the same month, which produced 433 bbls. daily, and on April 1st there were 55 wells under the drill. The new wells completed in the Indiana field during March numbered 40, with a daily capacity of 1,000 bbls., and on April 1st there were 64 wells drilling.

ALABAMA.

CHEROKEE COUNTY.

(From Our Special Correspondent.)

The output of bauxite from the mines in this county during the month of March was 541 tons.

CLEBURNE COUNTY.

(From Our Special Correspondent.)

A syndicate from Columbus, O., had representatives in this county recently who visited the several prospects which are being opened up in the gold fields. I am informed that there is some probability that this syndicate will be advised by its representatives to invest some money in some one of the gold-bearing properties in the county.

HICKS-WISE.—The work of sinking on this property is being continued below the bottom of the shaft, which was sunk in 1893 to a depth of about 100 ft.

JEFFERSON COUNTY.

(From Our Special Correspondent.)

TENNESSEE COAL, IRON AND RAILROAD COMPANY.—It is reported that Mr. Baxter, president of this company, has requested the coal miners in the employ of this company to accept a reduction of 5c. per ton for mining coal, to go into operation on June 1st.

RANDOLPH COUNTY.

(From Our Special Correspondent.)

PINETUCKY.—Work of drifting on the ore body which was crosscut in the new shaft at this mine is being continued, and I am informed that the ore is maintaining its grade.

TALLAPOOSA COUNTY.

(From Our Special Correspondent.

UHLRIG.—Capt. John A. Grant, of Atlanta, is erecting a 10-stamp quartz mill on this property, situated about 15 miles north of Alexander City. The work has been retarded very greatly by the excessive rains which have visited this section; but it is expected that the stamps will be dropped at this plant within the next 30 or 60 days.

ALASKA.

ALASKA TREADWELL GOLD MINING COMPANY.—This company reports the clean-up for the month of March as follows: Period since last return, 28 days; bullion shipment, $45,032; ore milled, 18,642 tons; sulphurets treated, 401 tons; of bullion there came from sulphurets, $15,775; gross expenses for period, $24,054.

ARIZONA.

MARICOPA COUNTY.

VULTURE.—B. R. Hieronymus, cashier of the First National Bank of Madison, Wis., who bought this mine, near Phœnix, January 12th, has recently sold it to Henry M. Love, of Chicago, W. C. Davis, of Tucson, and associates.

CALIFORNIA.

ALAMEDA COUNTY.

(From Our Special Correspondent.)

SAN FRANCISCO & SAN JOAQUIN COAL COMPANY.—The first coal brought from Corral Hollow to Stockton was shipped on March 24th. The consignment consisted of 10 carloads. The company has not yet made public its rate but has always said it would be very low, about $4 per ton to householders, and very much lower to manufacturers.

CALAVERAS COUNTY.

(From Our Sepcial Correspondent.)

BALD HILL.—At this mine, south of Angels Camp, an 8-ft ledge has been discovered about 200 ft. from the old shaft. The ore is said to assay $40 per ton.

BLOOD.—At this mine at Collierville, near Murphy's, a rich vein from 8 to 12 in. in width has been uncovered. The mine was abandoned many years ago, but the present bonders have run a tunnel which has opened up a good paying property.

JENNY LIND MINING COMPANY.—This company has been incorporated by C. D. Lane, T. T. Lane, A. Hayward, H. G. Stevenson and L. W. Shinn. Capital stock $1,000,000, all subscribed. The company proposes to conduct mining operations in this county.

KERN COUNTY.

(From Our Special Correspondent.).

BUTTE.—This mine, in the Ransburg district, has been sold to Frank K. Wilson, of Silver Bow, Montana, for $50.000. The claim was located in March, 1896, and has produced about $60,000. The new owner will put the mine in first-class condition and work on a large scale.

RANDSBURG GOLD MINING, MILLING AND WATER SUPPLY COMPANY.—This company has acquired the La Monte, Solar, Zepher and Luna mines, lying east of the Rand company's property. This makes seven claims owned by this company, including the Val Verde, Val Verde No. 2 and Val Verde No. 3, giving a total acreage of 134 acres, which have a number of good claims running through them.

NEVADA COUNTY.

HOMEWARD BOUND.—George Mainhart, superintendent of this mine, near Grass Valley, reports that hoisting works will soon be erected on the property.

SAN BERNARDINO COUNTY.

(From Our Special Correspondent.)

JEFF DAVIS.—This mine, in the Morongo Mining District, has been purchased by San Francisco parties who have put 10 men at work under the superintendency of W. Barclay. The deepest shaft is down 120 ft. This company has also purchased several other claims in this vicinity.

MORONGO MINING COMPANY.—This company has placed a large force of men at work on the Rose mine, which is located 45 miles northeast of Victor, at an elevation of 7,200 ft. Sinking is now going on from the 700-ft. level. The 10-stamp mill is running steadily and considerable ore is being shipped.

TRINITY COUNTY.

(From Our Special Correspondent.)

BLOSS & MCCLARY.—This hydraulic mine, near Trinity Center, has been a large producer. The gravel is about 30 ft. in depth at present, and $18,000 per acre is being realized. The water supply is to be increased to 5,000 in. this year, this will enable them to wash off about five acres per year.

TULARE COUNTY.

(From our Special Correspondent.)

In the Yokohl Valley, about 18 miles east of Visalia, copper ore has been discovered which is said to be very rich, about 22% of copper. The owners have had the property experted by an engineer from St. Louis, and on his recommendation will erect a small smelter and test the ore body thoroughly. An option has been secured on 3,700 acres beneath which the vein is located.

TUOLUMNE COUNTY.

(From Our Special Correspondent.)

ANDY JOHNSON.—This mine, at Chinese Camp, one of the oldest west of the Mother Lode, has shut down temporarily and the men are employed grading for the new steam hoist. Most of the machinery is on the ground and will be erected in a few days. It is the intention of the owners to sink a new shaft.

GARFIELD-VIRGINIA.—These mines, about 12 miles southeast of Sonora, comprise the Garfield, Aramenta and Virginia, have been bonded to C. M. Cross, of San Francisco, for one year, price $25,000.

He is making arrangements to contin ue the development work on a large scale. The workings now consist of a 450-ft. tuanel and a 50-ft. shaft. The vein is said to be 20 ft. wide.

SOULSBY.—At this mine, near Soulsbyville, which comprises the Churchill, Johnson & Bradley, Pennsylvania, Platt & Gilson and Soulsby claims, the 10-stamp mill is running steadily. Thirty men are employed. An air compressor plant is to be put in. The principal mine is the Soulsby, which is being worked below the 800-ft. level.

TARANTULA.—This mine, 1 mile southwest of Tuttleville, has had a large amount of development work done on it lately. Four shafts have been sunk; one is down 55 ft., with a crosscut which at 75 ft. taps the east vein, which shows 8 ft. of high grade ore. A drift has also been run 25 ft. south. Shaft No. 2 is down 15 ft. showing an 18 in. vein. No. 3 is down 100 ft. with two crosscuts of 25 ft. each, and 25-ft. drift run south. At No. 4 the double compartment shaft has reached a depth of 25 ft. Two shifts are doing all the work, and several buildings are in course of erection. Some of the ore on the dump assays quite high.

COLORADO.

EL PASO COUNTY—CRIPPLE CREEK DISTRICT.

(From Our Special Correspondent.)

INGHAM.—This is one of the best new shippers of the year. It is located on Raven Hill, and has been worked by the Ingham Company, also by lessees, and is worked now by the company under the management of Alton L. Dickerman, and the superintendence of Mr. Lawton. The output for March was 350 tons, yielding gross value of $20,000, working 52 men. The February output was 300 tons. The shaft is about 270 ft. deep.

KALAMAZOO & LITTLE JOE.—These two claims, on Bull Hill, have recently been equipped with steam hoist and compressor and development is being pushed by an Eastern syndicate. Mr. Pitcher is the local manager.

LUCKY GUSS.—The shaft has been sunk 595 ft. and at 600 ft. a station will be cut and drifts extended.

MARCH OUTPUT.—March was the banner output month of the camp, and the one million dollar mark has been reached. The table below shows the ore output for March and the three months ending March 31st:

	Smelters		Mills		Total
	Tons.	Value.	Tons.	Value.	Value.
January	7,470	$560,550	10,410	$281,070	$841,620
February	6,532	522,560	11,478	285,950	899,510
March	6,459	574,857	17,136	428,400	1,003,251
3 Months	20,461	$1,657,961	39,024	$996,420	$2,654,381

The average value of smelting ore shipped was $75 in January, $80 in February and $89 in March; of mill ore, $27 in January, $25 in February and $25 in March. The total tonnage of all kinds of ore was 17,880 in January, 18,010 in February and 23,595 in March.

It will be seen that the shipping ore is decreasing month by month. From January to March there has been a decrease in tonnage of 14%, but the grade has improved; the mill ore increased 60% in the same period. The reason is, the mineowners and lessees are paying less attention to sorting than formerly and everything goes to the mills, which are now well filled, and are not solicitous for any more ore until the stocks are worked off.

PHARMACIST.—This mine, on Bull Hill, is increasing its output. The lessees on the old shaft are sending all the waste dump on the shells above the 250-ft. level and screening it and making it pay well, and by car lots the fines sample from 3½ to 4½ oz.

PORTLAND.—This mine, on Battle Mountain, had an output for March of 60 tons a day; the grade of ore nets close to $40 a ton. The number of miners employed is 150. A new 16-drill compressor is ordered, the largest in the camp, and one of the largest in the State.

VICTOR MINING COMPANY.—This company recently sent circulars to the stockholders announcing the suspension of the April dividend, on account of not being able to treat low-grade ores, which amount to from 1,500 to 1,700 tons a month. This ore has been treated at the cyanide mill, but that mill during March received and stored 2,100 tons more than it was able to treat, and last month ran for the first time to its full capacity. The development at the mine has also not been pushed.

WORK MINING COMPANY.—The output for March was 150 tons. The mill ore nets $25 per ton from the mill and the first-class ore samples about 5 oz. Fifteen men are at present employed.

FREMONT COUNTY.

(From our Special Correspondent.)

PAGE PROCESS MILL.—This mill, at Florence, has been in constant operation since March 16th, the date of its completion, and the first clean-up from about 300 tons of low-grade ore yielded a bar of about 309 oz. of gold, which was shipped to the Denver Mint. The average recovery was a fraction over 94%, the time of extraction being 4½ days. The clean-up of this lot was to ascertain as accurately as possible the utility of the Page process, and the results have exceeded the most sanguine expectations. The mechanical operation of the mill seems to be excellent in every respect. The cost of fuel for all purposes, including drying, electric lighting, power for all purposes, etc., was only 10c. per ton, residium oil being piped for that purpose from the refinery, a distance of about a mile. The Stearns-Roger Manufacturing Company, of Denver, erected this mill, which was designed by Mr. John E. Rothwell, mining engineer, and authority on the chlorination process. The same company is now also erecting a chlorination plant at Florence for the El Paso Reduction Company, which already has a similar plant at Gillett, in the Cripple Creek District.

GUNNISON COUNTY.

(From Our Special Correspondent.)

DUBOIS.—The late contractors have thrown up their contract for driving this tunnel to the Mollie vein, and the work has been re-awarded. The ground is very hard.

HATTIE TRICE.—A crosscut is being driven into a large dyke of ore which is yet of too low a grade to ship with profit.

OLD LOT.—Development work continues in the upper levels. About 150 tons of ore are now on the dump awaiting a resumption of the mill.

VENABLE.—Sinking was begun April 5th; a hoister and pumping plant are on the ground and when these are in working order the shaft will be sunk an additional 100 ft.

VULCAN.—The shaft is still going through white iron-quartz. Another carload of rich ore was shipped week ending April 10th.

YELLOW JACKET.—A new tunnel has been started by J. H. Bush, to tap the vein at greater depth. It will be completed about July 1st.

HINSDALE COUNTY.

(From Our Special Correspondent.)

HIDDEN TREASURE.—This mine has been transformed from one of the greatest low-grade propositions to one of the biggest producers of rich ores in the San Juan country, a large pay streak having just been encountered. Five crews of men are at work in various sections of the mine, each of which is taking rich ore.

SCHAFER SAMPLING WORKS.—This plant, together with the assay office under the same control, has been leased to Ray & Hart, and will hereafter be conducted entirely on custom work.

VERMONT.—Samples of the ore have been sent to Salt Lake City to ascertain what process is best adapted to treat it at a profit. The new 5th level is being driven on a pay streak of rich gold ore 5½ in. wide. It consists of gray copper, black sulphurets of silver and iron and copper pyrites.

LAKE COUNTY.

(From Our Special Correspondent.)

DOWN-TOWN CONDITIONS AT LEADVILLE.—All eyes are now turned to the "down-town" section, for it is the belief that at an early day these properties, which before the strike were daily shipping from 600 to 700 tons, will soon again be in operation, although it will take some months to pump them out and place them in the condition they were in before the strike.

At the recent city election in Leadville the better element of the union voted against the Miner's Union ticket and the Citizens' ticket was elected by one of the largest majorities ever recorded. This proved conclusively that the larger portion of the union was ready to assist in developing the Leadville mines and wanted to go back to work. It was feared before election that the union would again try to run things, but this fear has been dispelled, and the matter of resumption of work of the down-town mines is now under discussion. It is learned that a meeting of the down-town operators will be held and the matter of economic draining will be thoroughly discussed. Several suggestions have been made, but it is most likely that the one to be adopted will be the one that all of the operators do their share in getting out the water. The bulk of the pumping will naturally fall on the Bon Air and Penrose, but the other mines can assist by means of large tank bailers.

The importance of this pumping proposition cannot be over-estimated, as a most important group of mines, covering large territory, will be affected. The most important combination effected is the Smith-Moffat group, which controls the Bon Air and Penrose mines. The work of keeping the mines permanently drained will, in the future as in the past, fall upon the last-named properties, so that it is quite necessary that the pumping agreement, which has already been described in the *Engineering and Mining Journal*, and which is binding for a period of eight years and divides up the pumping expenses, be signed by every owner and lessee. This agreement is about all signed and I have just learned from one of the best mining authorities in the camp that if no hitch occurs it will be signed complete in a very short time and arrangements will then be gotten under way at once for a resumption of work.

LOWER HENRIETT.—The lessees have opened up the ore bodies to such an extent that they increased their shipments to one hundred tons a day. Two shifts have been put to work and development work is being prosecuted vigorously.

RESURRECTION.—Manager Carnahan is carrying on important work in this property. A new pumping plant and other machinery was put on the ground last week. The coming season will see the sinking of the shaft to a lower level and the opening up of the ore bodies at that point.

SCOOPER.—This mine is east of the El Paso on Yankee Hill and has lain idle for a number of years Not long ago two miners secured a lease on it and have opened up some fine carbonate ore heavily impregnated with chlorides. Some of the ore assayed as high as 500 oz. Not enough development work has yet been done to tell the exact extent of the strike.

SEDALIA.—Now that the Resurrection is putting a pumping plant in place, the Sedalia will not have so much water to handle, and arrangements are already under way for the sinking of the Sedalia shaft another 100 ft. The two shafts will do their share of pumping and will be sent down together. In the meantime the Sedalia continues to ship about 40 tons per day.

SMALL HOPES.—By the last of next week all of the pumps will be in place and everything in readiness for the increasing of operations on this property. It is the intention to push a great deal of new development work.

STARS.—Ever since the settlement of the strike work has been carried on industriously by some 20 different sets of lessees on the Stars, and about 150 tons per day of good iron is being shipped.

VIVIAN MINING COMPANY.—These people and their sub-lessees are doing a great deal of important work in the section east of the Iron fault. They have control of the Stone, Dome and others. Some big iron bodies are being developed and over 2,000 tons of this ore was shipped last month, and fully 2,500 tons are expected to be shipped in April.

OURAY COUNTY.

(From Our Special Correspondent.)

BACHELOR.—Several sets of miners have been laid off, but 75 men are still employed. The vein opened out recently into a large pocket, which proves to be richer than any heretofore found.

BOBTAIL.—Thos. Walsh and others have secured a bond and lease on this group in Commodore Gulch, near Ironton, and will begin work as soon as the weather permits. The Bobtail is an old-time producer and has large bodies of low-grade ore in sight.

BRIGHT DIAMOND.—This property, just below Ouray, will probably be started soon, under the management of Congressman Shafroth, of Denver. The litigation involving the mine has, it is understood, been amicably adjusted.

SAN JUAN COUNTY.

(From Our Special Correspondent.)

BANDORA MINE.—This mine, up South Mineral, which is under lease to Messrs. Patterson & Johnson, old-time San Juan miners, has made a better showing this winter than probably any other lease in the camp. The formations characteristic of this mine are similar to those obtained at the Enterprise mines at Rico, being a contact vein intersected and faulted by vertical fissure veins. The last car of ore shipped from the lease returned net $980. Three more cars of this grade are now stored in the ore-house awaiting the reopening of the Silverton wagon road.

BIG GIANT.—High-grade ore has just been discovered in a stope, and the mine and mill are both to begin active operations at once. William Keith, the former lessee, has secured an extension on his lease and bond.

GOLDEN HORN CONSOLIDATED.—Manager Callow, of this property, at Icelake Basin, has returned from London with $60,000, which will be used in the construction of a tramway to connect the mines with the company's mill and to put in air drills and a steam plant as auxiliary power. The mill has 400 tons of ore on hand and will start up about May 1st.

INDEPENDENCE.—A strike of rich ore has been recorded in this mine, on the middle fork of Mineral Creek. The property was located July 4th, 1895, but up to the present winter nothing further than assessment was done. Some months ago, however, a long crosscut was started to intersect the vein at a depth of 75 ft. This has just been completed, and now the breast shows 5 ft. of shipping ore, similar to that in the Bonner. The mine is the property of Messrs. Abbott, Dennison, Boyle and Thompson.

JERSEY.—A contract for drifting 100 ft. has just been awarded to John Davy on this mine at Eureka.

NATIONAL BELLE.—This mine is merely keeping the water out of the lower levels. Any shipments made this season will probably be of lead ores taken from blocks in the upper levels, for the bottom of the shaft is in a large body of ore that will hardly pay for hoisting at present silver prices. In the Belle crosscut there has been caught a good chute of low-grade lead and copper ore from which some shipments will also be made this season.

ROYAL CHARTER.—Kimball & Trippe are working this property, near Howardsville, and have just sent 350 tons of good ore, the result of a winter's development, to the Howardsville mill, which they expect to lease this season and conduct solely in the treatment of the Royal Charter product. The average daily production at present is 12 tons.

ROYAL TIGER.—A large body of lead ore, similar to that of the Silver Lake has just been found at this mine, in Arrastra Basin. Fifty tons per day will be shipped.

SCOTIA.—A large body of ore has just been encountered in this mine, at Eureka.

TOM MOORE.—This mine, at Eureka, is to resume in a short time under the management of Capt.

Morrison. The compressors which were obtained from the Silver Wing are to be utilized and all the drilling will be done by machines. The mine shipped 500 tons of iron and copper sulphides last season.

WHALE.—A strike of much importance is reported from this mine, at the point of the intersection of its vein with the Silver Lake tunnel at a depth of 1,200 ft. The ore body is 6 ft. through, and so rich that native gold is plainly visible. The lowest workings are 600 ft. above the Silver Lake tunnel, and in early days produced over $200,000.

SAN MIGUEL COUNTY.

(From Our Special Correspondent.)

COLUMBIA-MENONA MINING AND MILLING COMPANY.—Men are driving east and west drifts on the vein. An upraise connecting the tunnel with the upper workings, a distance of 450 ft., will shortly be commenced.

FOX.—Osborne & Munroe will start work in a few days. A drift will be run at considerable depth on the vein.

HIGH LINE GROUP.—This combination comprises the High Line, Signal, El Paso and Cornucopia claims, at the head of the canon just above Ophir. Experts recently expressed their opinions that the property was one of the best in the county, and the owners, Jerry Cole and C. W. Steele, of Grand Junction, are making preparations to develop the ground on an extensive basis this summer. The ore found is silver, but the gold valuation is also good. Large bodies are in sight.

JAPAN MINES COMPANY.—A force of 25 men is opening up new stoping ground, the high grade ore encountered averaging two carloads per week, which is shipped to smelters.

MIKADO MINING AND MILLING COMPANY.—This company is composed largely of the same stockholders as the Japan, and their properties are worked in conjunction. The Mikado company is driving a crosscut tunnel now in about 1,500 ft. to intersect a western extension of the Tom Boy vein at a considerable depth. Only 200 ft. remain to be driven.

OPHIR'S OUTPUT.—The following is the output in cars for 1897 up to April 5th from the Ophir district: Carribeau, 24; Silver, Bell, 17; San Bernardo, 3; Butler, 5; Texas, 2; Creve Cœur, 1; Montezuma, 1; Total, 53.

PARNELL.—Robert Neely has secured a bond and lease on this property, near Ophir. The lease is for two years, and stipulates that the property shall be worked continuously during that period, while the bond calls for $10,000. This is strictly a gold proposition, and Mr. Neely states that it is his intention to at once put in a 15-stamp mill, as well as make improvements in the working plant.

CONNECTICUT.

MIDDLESEX COUNTY.

MIDDLESEX QUARRY.—This quarry, near Portland, has been started on full time, and now employs about 400 men.

GEORGIA.

CARROLL COUNTY.

(From Our Special Correspondent.)

BOSTON KENNESAW MINING COMPANY.—The *Atlanta Constitution* of April 11th is authority for the following paragraph: "A telegram received last night from Villa Rica stated that the Boston-Kennesaw Company had struck an ore body of 70 ft. The company has spent $50,000 there, and the management was becoming discouraged at not striking a vein."

FULTON COUNTY.

(From Our Special Correspondent.)

Some of Atlanta's most substantial capitalists are investigating the advisability of erecting a custom chlorinating plant of about 25 or 30 tons capacity. Their purpose is chiefly to aid in the development of bodies of refractory ore which occur at various locations throughout the gold-bearing regions of Georgia and Alabama, by erecting a plant to which miners can ship their ore for treatment while prospecting their properties.

HARALSON COUNTY.

(From Our Special Correspondent.)

ROYAL. — The clean up from this mine for the month of March is represented by a gold brick valued at $3,950. No quantity of ore treated was mentioned, nor whether the concentrates treated in the chlorination plant were included in this clean-up. Whether the ore from which this value was obtained was from the 75-ft. level or from the deeper shaft I am not informed. According to the Atlanta *Constitution* of April 11th, this clean-up was the first made since the new plant was put in operation, and showed the value saved from the ore run through 40 stamps and Huntington mill during the month of March.

IDAHO.

LAW OF PLACER CLAIMS.—The legislature has passed a bill providing that Section 12 of the mining law be amended to read as follows: "Section 12. The locator of any placer mining claim located for the purpose of mining placer deposits or precious stones, must, at the time of making the location, place a substantial post or monument as is required in the location of quartz claims at each corner of the location and must also post on one of the same a notice of location containing the date of the location, the name of the locator, the name and dimensions of the claim, the mining district (if any) and county in which the same is situated; and must also give the distance and direction from said post or monument to such natural object or permanent monument, if any such there be, as will fix and describe in the notice itself the location of the claim. Within 15 days after making the location, the locator must make an excavation upon the claim of not less than 100 cu. ft. for the purpose of prospecting the same. Within 30 days after the location the locator must file for record in the office of the county recorder of the county, or of the deputy recorder of the mining district in which the claim is situated, a substantial copy of notice of location, to which must be attached an affidavit such as is required in the case of quartz claims."

IDAHO COUNTY.

(From Our Special Correspondent.)

BANNER MINING COMPANY.—This company, with headquarters in Spokane, Wash., has increased its capital stock from $600,000 to $1,000,000. The property owned is the Banner mine, in Florence, on which considerable development work is being done. The trustees are S. S. Glidden, F. R. Culbertson, H. M. Glidden, W. D. Vincent and C. G. Brown.

BAY HORSE.—The hoist and steam pump on this property will be ready to start up in 10 days. A force of men is employed house-building, etc., but the heavy snowfalls make outside work very slow.

BLOSSOM.—Drifting on the 100-ft. level is being continued. A 10-in. vein of rich ore has been opened in the east drift.

CLEOPATRA.—An organization has been formed in Grangeville to operate this property, which is a mere prospect. Stock is being sold for development work.

CONGO.—This property, adjoining the Ozark mine, has been sold to A. Walker, representing outside parties. The vein has been opened by shallow shafts for 600 ft. and runs from 10 in. to 3 ft. in width and prospects well in free gold. A contract for sinking a 100-ft. shaft will be let in a few days This property may be incorporated after the shaft is finished.

FREE COINAGE.—The shaft on this mine has reached a depth of 60 ft. The ore body is over 5 ft. wide, but the value is low. A crosscut tunnel has been started to cut the vein at a depth of 150 ft.

FRILLY.—Work will be resumed in two weeks on this property and the shaft sunk 200 ft. deeper.

GOLD BUG MINING COMPANY.—This company, with same trustees as the Banner Mining Company, has increased its capital stock from $600,000 to $1,200,000.

GREEN CREEK MINING AND MILLING COMPANY, LIMITED.—This company has been incorporated in Moscow to work a group of quartz properties, 3 miles above Jackson's Bridge on the south fork of Clearwater River.

HI YOU GOLD MINING COMPANY.—This company has been incorporated in Spokane, Wash., with capital stock of $1,000,000. The properties purchased by the company consist of Hi You, Missing Link and Homestake, in Florence Basin. The Hi You had been quite extensively worked in early days and several thousand tons of good ore mined and milled. C. M. Fassett, mining engineer, is president of the company

IDAHO MINING COMPANY.—A crew of men is at work on the property of this company at Elk City, clearing out ditches preparatory to the season's run. It is expected piping can be commenced by April 15th.

IRON CROWN.—About 400 ft. of development work has been done this winter on this mine at Newsome, and a large amount of ore is in sight. It is probable a small mill will be erected this spring. The ore from this property is free milling gold ore and averages $40 per ton.

OZARK.—A body of ore 2½ ft. wide has been encountered in the shaft while sinking, which will run over $100 per ton in free gold. The gold is visible in the quartz, which is in ribbons or narrow layers. The ore bins are full both at the mine and mill, and as the heavy snowfall delayed the operation of the mill, it has been necessary to lay off the men in the stopes until the mill starts.

PHŒNIX MINING COMPANY.—This company has been incorporated in Spokane, Wash., with $1,000,000 capital stock by C. D. Ide and H. K. Owens, to work an extensive gravel deposit near Slate Creek, on Salmon River.

POORMAN.—This property has been incorporated by Grangeville and Lewiston parties. A hoist and steam pump are to be put on at once, and sinking vigorously pushed.

RED BIRD.—A force of men is at work on this property sinking from the lower tunnel on the vein. A body of ore has been opened up in the shaft, 12 in. wide, which gives good values.

SHORT MINE.—This placer property on Salmon River, about 50 miles from Grangeville, has been sold to A. Z. Bowen, of Chicago, who is now on the ground and has a force of men at work extending and enlarging ditches. This claim, which is quite extensive, will, in the future be worked on a scale commensurate with its size.

ST. CHARLES.—The shaft on this mine is now down 50 ft., and a streak of ore 18 in. wide exposed, which assays $60 per ton. A crosscut tunnel has been started to cut the vein at the depth of 100 ft.

SHOSHONE COUNTY.

DADDY.—G. W. Coplin, one of the owners of this mine, near Murray, reports that some time ago they ran into a body of lean ore, due to infiltration from the quartzite above. They pushed through that and have now struck a vein 2 ft. thick in its normal condition, carrying good values. They are encountering more sulphurets than formerly, and will soon order concentrating machinery.

KANSAS.

CHEROKEE COUNTY.

(From Our Special Correspondent.)

CARPENTER & COMPANY.—At the Sunflower plant they are producing 45 tons of zinc ore and 8,000 lbs. of lead ore weekly. They are drifting at 100 ft. on a large face of lead and jack.

DE GRAFF BROS.—In the pump shaft on their lease, north of Empire City, good pay dirt was struck at 80 ft. and penetrated 33 ft. The shaft is now 150 ft. deep and another body of ore has been struck that is paying $5 per foot in sinking.

HEDGES BROTHERS.—They have bought Dr. Newlon's interest in the concentrating plant on the Cock Robin lot and two other lots on the Shelbina lease. They sold the ore that was on hand and have cleaned up and repaired the plant and will start up again.

HUFF & COMPANY.—The company's plant, on the Battlefield lease, is running steadily, on rich dirt and is producing from 50 to 60 tons of zinc ore weekly. They are hoisting from two shafts and are drifting at 70 ft. on 35-ft. face of disseminated zinc ore.

KIER & COMPANY.—At the Hedges plant they have sunk a new shaft and are drifting at 80 ft. on a large face of zinc ore, and they have been producing 35 tons of zinc ore weekly.

ORONOGO MINING COMPANY.—The company, on one of the mine lots on the McCann lease, is finishing a fine large concentrating plant which is different from any other plant in the entire district, and is an experiment. They will start in a week and will handle over 500 tubs every 10 hours. They have five shafts from which to hoist pay dirt.

RICHLAND MINING COMPANY.—They are hoisting good pay dirt from several shafts, and are turning in every week from 50,000 to 60,000 lbs. of lead ore and 15 tons of zinc ore. The ore is found at 80 ft. to 115 ft.

SPRING RIVER MINING COMPANY.—On the company's lease, southwest of Galena, there are nine shafts from which they are hoisting good pay dirt, and about 20 prospecting shafts going down. The company has let a contract to Stevens & Freeman, of Joplin, Mo., to build a plant like that of the Oronogo company's with larger boiler and engine.

KENTUCKY.

UNION COUNTY.

CUMBERLAND COAL COMPANY.—This company, composed of capitalists of Nashville, Tenn., with W. W. Smith as president and Isaac Reese secretary, made an assignment last week to Clarence Wilson as assignee. The assets amount to $50,000; liabilities about the same. The mines caught fire about three weeks ago, and since then have not been operated.

MARYLAND.

ALLEGANY COUNTY.

CONSOLIDATION COAL COMPANY.—This company has begun work on a new mine near the Carlo mine of the Barton & Georges Creek Valley Company. The opening is being made to develop a large tract of the original 8,000 acres of the company's "Big Vein" seam.

CHARLES COUNTY.

It is reported that the bed of fullers' earth, near Pope's Creek, has been sold to Richard C. Reamey, of Philadelphia, who will work it and put up a plant to prepare the product for market.

MICHIGAN.

IRON—GOGEBIC RANGE.

METROPOLITAN IRON AND LAND COMPANY.—This company has announced an increase of 10% in the wage scale in their mines in Ironwood, commencing April 1st. This increase affects 1,000 men. It is a resumption of the scale prevailing prior to two months ago. The company also announced it will increase its force by the addition of 300 men at once.

IRON—MENOMINEE RANGE.

STEPHENSON MINING COMPANY.—This company's capital $100,000, has been organized with the following directors: A. M. Robbins, Cleveland; Isaac Stephenson, Marinette; H. A. J. Upham, Milwaukee; R. C. Flannigan, Norway, and Superintendent McNaughton, of the Chapin mine, Iron Mountain. The Stephenson mine at Norway, is to be worked again with a big force of men.

MINNESOTA.

(From Our Special Correspondent.)

The appointments of masters and engineers for the Minnesota Iron Company's and allied fleets for the year have been made and the ships are being rapidly put into condition. They will begin to move in a week or less, and shipments will be made from Two Harbors and Duluth probably before May 1st.

The Minnesota Company's fleet this season consists of six steamships with a capacity of from 4,000 to 4,500 tons, on 16-ft. draft, which is given out as assured, and of six of a capacity of 3,000 tons, besides six schooners of from 3,500 to 4,500 tons, making a total fleet capacity of about 67,000 tons a trip, and almost four round trips can be figured on monthly, giving a season's capacity of 1,750,000 tons. Whether the Minnesota Iron Company ships 3,000,000 tons in the year, as some claim, or 2,500,000 tons, as is more probable, it will be able to carry the bulk of its own freight.

The 18 steel ships of the Bessemer fleet will all be in commission at the earliest possible date, and will carry in the season from the Duluth docks of the Missabe and Northern road, the associated company and from the Tilden mine on the Gogebic, another associated concern, something like 2,000,000 tons, very much more than half the tonnage of the Rockefeller road. With their own vessels carrying so much of the ore to be mined on the Vermilion and Mesabi ranges, there is not much hope for independent vessel operators, so far as fixing rates is concerned.

The new Bessemer pool claims to figure that about 7,000,000 tons of Bessemer grade will come down this year from all ranges and that enough non-Bessemer will be shipped to make business of 10,000,000 tons. Ore men here expect that if that limit is not raised by 2,000,000 tons at the least before the season is well along there will be some very disappointed men in the trade.

IRON—MESABI RANGE.

(From Our Special Correspondent.)

ARCTURUS MINING COMPANY.—This mine, which is the westernmost exploration on the Mesabi, has been closed down till later. Exploratory work has been going on there for some months, with fairly good results.

BIWABIK BESSEMER COMPANY.—It is stated that this company may operate its mine this year, after all, and not abandon it for the present.

LAKE SUPERIOR IRON MINES.—This company, which operates three properties at Hibbing, is employing 300 men and it is unofficially announced will increase the number soon. Nearly all the ore from the three mines comes from the Hull and Burt, the Rust still being in the development stage.

MOUNTAIN IRON.—At this mine stripping has begun and some ore is being handled. About 100 men are at work. The company will, in a few days, receive a 90-ton shovel from the Vulcan Works, which is expected to mine 5,000 tons a day of 10 hours.

OLIVER MINING COMPANY.—Stripping has begun at this mine and active mining will commence as soon as the Sault Canal is open.

SELLERS ORE COMPANY.—Shoenberger, Spear & Company, who own and operate this mine, have closed it down indefinitely, it being claimed that they can buy ore under the new schedule cheaper than they can mine it. The Sellers has been running some 80 men all winter and has 50,000 tons in stock. It has been hoisting of late 350 tons daily. The mine has an excellent grade of ore. Its pumps will be kept in operation.

MISSOURI.

JASPER COUNTY.

(From Our Special Correspondent.)

JOPLIN ORE MARKET.—The district sales for the past week were heavy, although some of the Joplin producers have not sold for two weeks. On the other hand the I Know Company disposed of its accumulation of 770 tons. The sales of zinc ore were 24 carloads more and lead ore six less than the preceding week. Compared with the corresponding period of 1896 the shipment was a gain of 32 carloads of zinc ore and one carload of lead ore. The highest price paid during the week for zinc ore was $21 per ton for the Becky Sharp and Blue Goose Company's product and the Oronogo ore, but the I Know Company's ore sold three weeks ago was at the same figure, although it was shipped the past week. The top price in the balance of the district was $20. Lead ore sold all week at $18.25 per 1,000 lbs. delivered. The same time last year 20 carloads of zinc ore sold at $23 per ton, and lead ore opened at $17 per 1,000 lbs, dropping to $16.50 delivered. There is very little surplus lead and zinc ore in the district, something unusual at this time in the year. Following are the sales of zinc and lead ore for the week ending April 10th: Joplin zinc, 2,189,990 lbs.; lead, 259,770 lbs.; value, $27,188. Carterville zinc, 669,080 lbs.; lead, 169,980 lbs.; value, $9,062. Webb City zinc, 760,390 lbs.; lead, 26,010 lbs.; value, $7,331. Galena zinc, 3,250,000 lbs.; lead, 617,170 lbs.; value, $40,359. Aurora zinc, 450,000 lbs.; lead, 40,000 lbs.; value, $3,380. Oronogo zinc, 36,100 lbs.; lead, 5,220 lbs.; value, $424. Alba zinc, 104,000 lbs. value, $1,049. Granby zinc, 262,500 lbs., value, $2,096. Stott City zinc, 44,620 lbs.; value, $446. Zincite zinc, 27,470 lbs.; value, $269. District totals for last week: Zinc, 7,794,150 lbs.; lead, 1,118,150 lbs.; value, $91,595. District totals for 14 weeks: Zinc, 89,308,900 lbs.; lead, 18,064,930 lbs.; value, $1,125,845.

ARCHIE, GOVE & COMPANY.—They have struck a good body of pebble zinc ore at 45 ft. in timbering ground, after going through two layers of coal a foot thick, and are still sinking in rich dirt and very little water.

ARKANSAS COMPANY.—This company has leased the old standard mines at Zincite, and is sinking a shaft east of the old shaft, and will put in pumps and thoroughly drain the ground.

BECKY SHARP COMPANY.—This company has leased 40 acres of the Snapp and 40 acres of the Bray land, and has two large pumps at the pump shaft, and with four other pumps working on the lease, they have the ground thoroughly drained to 160 ft. The ore is pebble zinc and brings the top price. In three shafts on the Bray 40 acres they have opened rich lead ore at 40 ft., and the zinc has been found in 10 shafts on the Snapp 40 acres.

BLUE GOOSE MINING COMPANY.—The company has a 40-acre lease of the Indiana & Missouri Company's land at Tuckahoe. At the pump shaft they are drifting at 145 ft. on a large face of zinc ore. At the Blue Hen shaft they are drifting at 90 ft. on a good face of ore. At the Ferris Wheel shaft they have put in a pump.

EMMA MINING COMPANY.—Mallett & Pierson, who compose this company, have leased 40 acres of the Bruce land in Radish Hollow, and have moved their pump and steam-jig plant from West Hollow to this lease. They are running steadily on rich dirt, and are producing 25 tons of zinc ore weekly. They are drifting at 40 ft. on an 18-ft. face of zinc ore in open ground, and only enough water to run the plant.

ISABELLA LAND.—The 360 acres of this land is rapidly being leased. The land lies east of Joplin and Senator Mott, of St. Louis, is the manager.

PHŒNIX MINING COMPANY.—This company owns 40 acres north of Zincite. Mr. Julius Tuchband, the manager of the company, is drifting at 71 ft. on a large face of jack. He has also a run of lead and jack at 40 ft. He leased the Cannon Ball shaft to Walker, Baird & Company, who at 34 ft. opened up a fine body of lead and zinc ore.

VULTURE COMPANY.—They are sinking a prospect shaft, and last week, at 135 ft., struck a fine body of pebble jack, and have gone through 5 ft. of pay dirt and are still sinking in it.

MONTANA.

BEAVERHEAD COUNTY.

EUGENEA MINING COMPANY.—This company has changed its name to the Bannack Dredge Company. The principal office is in Chicago.

DEER LODGE COUNTY.

CHAMPION.—R. K. Jones, foreman of this mine on the Little Blackfoot, near Elliston, reports 3 ft. of ore in the bottom of the shaft. Sinking is going on steadily at the mine. About 4 tons of ore are now being taken out of the shaft every 24 hours.

MAMMOTH.—Over 2 ft. of ore was encountered in the tunnel last week, about 400 ft. from the mouth, at a depth of about 150 ft. from the surface. The Mammoth is owned by Messrs. Miller, Merrill and others, and is an old property, having been worked years ago from a shaft on the top of the hill about 150 ft. above the point at which the strike was made. The mine is under lease to George Bailey, who has been working for over six months.

GRANITE COUNTY.

MANHATTAN & MONTANA MINING COMPANY.—This company was recently incorporated under the laws of West Virginia with a capital stock of $500,000, divided into $1 shares. The headquarters are in New York City. Mr. Hermann Thofehrn is president, and he informs us that the property of the company consists of three claims, namely, the Golden Anchor, Red Star and Blue Bell, located on Stone Creek. The ore body is quartzite and is partly refractory. There are above 15,000 tons of ore in sight with an average assay value of $52 per ton. The vein is 9 ft. wide and can be worked by quarrying. Mr. Thofehrn adds that considerable money has already been spent in developing the property, and that the present company will carry on further operations. The erection of a plant capable of handling 50 tons of ore a day is under consideration. It will consist of a stamp mill with plates and wells to catch what free gold there may be in the ore; concentrating tables, roasting furnaces and leaching apparatus. With this outfit it is expected to save above 85% of the contents of the ore handled at an expense not exceeding $5 per ton. For the present whatever ore is hoisted from the property will be shipped direct to the smelters at Phillipsburg, the nearest railroad station, and to Butte.

JEFFERSON COUNTY.

LIVERPOOL.—Mr. Alex. Swan, the lessee of this mine, reports that he has just received returns from a shipment of ore from the 450-ft. level of the mine, which netted 187 oz. of silver to the ton. The ore was taken out of a new drift just started at the lowest depth of the workings. Mr. Swan is employing 12 men, and is also doing some work in the Washington mine adjoining the Liverpool.

MOCKING BIRD.—A whim has been placed in this claim on the North Fork of Warm Springs Gulch, belonging to Gorbe & Henton, who are making arrangements to do extensive work on the property. A force of miners will be placed to work at once.

MADISON COUNTY.

(From Our Special Correspondent.)

BOZEMAN.—This mine, located about 4 miles from Pony, is leased to Boyd & Company. Returns from a 40-ton lot of ore show a value of about $40 per ton in gold.

CLIPPER GROUP.—This group of claims, 2 miles from Pony, owned and operated by Colling & Morris, furnishes employment for 25 men doing development work. This number will be increased when the weather and roads improve, so that ore can be hauled to the company's 20-stamp mill, located at Pony. The work in progress consists of driving three tunnels on the vein with machine drills. No. 1 tunnel is in about 1,250 ft. and is expected to cut the ore chute exposed in No. 4 tunnel, which is in about 1,500 ft. and about 200 ft. lower than No. 1. No. 5 tunnel, located about 200 ft. below No. 4, is in over 700 ft. and recently ran into a body of iron ore which is considered shipping ore.

DANEL.—This property, located at Richmond Flat, about 8 miles from Norris, is operated under lease and bond by Linneman & Schmidt, of Butte. It is a silver mine and at a depth of 50 ft. shows a 4-ft. vein of 100-oz. ore. A contract has been let to run a tunnel to cut the vein 200 ft. deeper.

GALENA No. 2.—This claim, located at Richmond Flat, about 7 miles from Norris, is producing some $150 ore. The shaft is down 100 ft. on the vein.

GOLD HILL.—This mine, located about 2 miles from Gaylord, has been sold to J. K. Clark and others, of Butte, for $100,000. This claim was located in May, 1896, by Charles J. Pruett and others. It has been worked for about three months, and shipped 250 tons of high-grade gold ore.

MAMMOTH.—At this mine, located about three miles from the Sultana, Superintendent Hopkins has been compelled to lay off nearly all his crew, about 20 men, owing to the condition of the roads, which makes the hauling of machinery impracticable. It is intended to get in a sawmill to furnish the necessary lumber for a leaching plant, flume and mining purposes.

SULTANA.—This mine, located on South Boulder, 15 miles from Pony, was purchased a few months ago by McKnight & Saunderson. They have run a tunnel on the vein 200 ft. in length, in ore all the way from 7 ft. to 20 ft. wide, which will assay from $2 to $100 gold per ton, and will concentrate 20 into 1. Another tunnel is in progress, which will tap the vein about 150 ft. deeper. If the vein proves to be good at this depth a concentrator will be erected at the mine.

WHITE PINE.—This mine, located about 2 miles from Pony, is owned and operated by Thomas Carman; it has been worked on a small scale for 20 years, and has produced $200,000, at a cost of about $50,000, from tunnel workings about 100 ft. deep and 300 ft. long. Ore has been milled from this mine which yielded over $500 per ton in gold, and a carload (about 20 tons) recently netted $10,000.

MEAGHER COUNTY.

DIAMOND R. MINING COMPANY.—Preparations are being made by this company to build a concentrator at Neihart, for the reduction of its own and custom ores. Mr. Ira Myers, president of the company, reports that the company will build a non-freezing flume from main Belt creek. The concentrator is to have a capacity of 100 tons daily, and will be erected on its own ground.

SILVER BOW COUNTY.

MONTANA ORE PURCHASING COMPANY.—In Butte, April 8th, after an unsuccessful attempt to restrain the sale, the Michael Davitt claim was offered at public sale. Two bidders appeared. Frank Klepetko, for the Butte & Boston Company, started bidding at $10,000. E. L. Whitmore, representative of F. A. Heinze and the Montana Ore Purchasing Company, bid against him and the price was run up to $351,100, at which figure the property was knocked down to E. L. Whitmore, whose bid was only $100 more than the last bid of Klepetko. The Michael Davitt claim lies between the Snohomish, belonging to the Butte & Boston, and the Pennsylvania, belonging to the Boston & Montana. It also adjoins the Rarus. The claim is only a fraction, but both companies wanted it on account of the bearing it might have on pending and possible lawsuits between them.

This company on April 10th filed a suit against E. Rollins Morse, chairman of the reorganization committee of the Butte & Boston, to compel conveyance to plaintiff of 10 acres of the ground on which the Heinze smelter stands, in payment of $36,000. Plaintiff claims an agreement was made November 16th, 1892, by which Butte & Boston was at any time within five years to turn the property over to F. August Heinze on payment of $36,000. Heinze has since transferred his interest to the Montana Ore Purchasing Company, which is ready to pay over the agreed sum. Morse refuses to make the transfer and threatens to sell the property to other parties. As the Heinze smelter is on the ground the company has interest in the matter. The suit is to have plaintiff declared entitled to conveyance on payment of $36,000 and whatever rent may be due. In case Mr. Morse refuses to make transfer, the court is asked to order the clerk of court to do so. The court issued a temporary injunction restraining Mr. Morse from making any conveyance of the property.

(From Our Special Correspondent.)

BUTTE & BOSTON CONSOLIDATED MINING COMPANY.—This company is gradually increasing its force at the Blue Jay, Grey Rock and Silver Bow mines. At the East Gray Rock pump stations are being cut on the 700 and 1,400-ft. levels, and development work is also in progress on the north vein. The south vein is given over to different parties of lessees from the 800-ft. level to surface. It

is stated that the shaft, which is 1,450 ft. deep at present, will be sunk deeper as soon as the new station pumps are put in. At the West Gray Rock the water is all out of the shaft, and men are at work cleaning up the 500 and 700-ft. levels. A large new boiler is on the ground, which will be speedily erected, and indications point to extensive developments.

LEXINGTON.—At this mine a small force of men is employed keeping the workings in good condition and taking out sufficient ore to pay expenses. The ore is shipped to the smelters.

NEVADA.

ORMSBY COUNTY.

(From Our Special Correspondent.

ZIRN.—A two fifth interest in this mine has been sold at public auction to A. L. Livingston, of Carson, for $8,000. Zirn was killed in the shaft a short time ago, and this stock was left as his estate. The remaining 60,000 shares are held by O. Schultz. The Raycroft Bros. will soon commence on the property, which is said to be very valuable, with a large force of men.

NEW MEXICO.

SANTA FE COUNTY.

LONE STAR.—This mine has resumed work in the second level to continue the upraise that is to connect with the upper level. They are also working in a large body of the richest ore yet discovered, in the lower 500-ft. level.

ORTIZ MINING COMPANY.—This company, operating the old Ortiz mine under lease from the New Mexico Mining Company, has struck rich ore at the depth of about 275 ft.

OREGON.

GRANT COUNTY.

RED BOY.—This mine is situated on Clear Creek, nine miles northeast of Robisonville, and four miles west of Granite. Three years ago, E. J. Godfrey and Clark Taber placed a 10-ton Crawford mill at the mine, and took a lease of the property. Today they own the mine. The ore is now being taken from the 300-ft. level, which shows an ore chute 300 ft. in length and from 6 to 15 ft. in width continous to the surface. Another ore chute has been discovered upon the same lode. Besides the Red Boy proper, two other lodes have been extensively developed. The milling plant consists of the Crawford mill and Johnson concentrator. The mill mantains regular clean-ups and shipments of concentrates to the smelter, but the amount is never divulged. The ground has been graded for a large mill and the owners expect to build this year.

PENNSYLVANIA.

ANTHRACITE COAL.

DELAWARE, LACKAWANNA & WESTERN RAILROAD COMPANY.—This company's Woodward mine, at Kingston, is about to be equipped with electric haulage by the General Electric Company. The generating plant will consist of one 165 k. w. dynamo directly connected to an American Ball engine. The circuits will be three in number. The first will pass down a vertical shaft 725 ft. deep and will operate one 10-ton locomotive in the Cooper vein. The two others will be carried down another vertical shaft 1,026 ft. deep to operate two 10-ton locomotives in the Red Ash and Baltimore veins. These locomotives will be equipped with two 40 H. P. G. E. motors, and will handle trips of loaded mine cars, each loaded car weighing about 4½ tons. It is estimated that this installation will show in operation a net saving of 29·5% over mule haulage, including a large reserve for depreciation, interest and fixed charges. The total output of these three locomotives will be about 3,800 tons per day, and the total length of trolley wire in the gangway will shortly reach 4¼ miles.

UTAH.

BEAVER COUNTY.

HORN SILVER MINING COMPANY.—The concentrates of this company have been accumulating since the dissolution of the Pennsylvania Lead Company, to whom they were formerly sold. These concentrates now amount to 1,000 tons, and have only recently been purchased by the Germania Smelting Company, of Salt Lake City, Utah, for about $120,000.

PIUTE COUNTY.

(From Our Special Correspondent.)

DEER TRAIL.—This mine, the first to be located in the Marysvale District, and which in the '70's revealed some sensational gold and silver values, has been leased and bonded to J. W. Shettle, of Salt Lake.

TOOELE COUNTY.

(From Our Special Correspondent.)

LA CIGALE.—The contracts are let for a cyanide plant of 200 tons capacity for this mine, which is located on the west dip of the Mercur vein. The contract calls for the completion of the mill in 90 days, from March 20th. The La Cigale is owned by C. H. Scheu, of Mercur, and some Boston capitalists.

NORTHERN LIGHT MINING COMPANY.—The new mill on this Lion Hill mine has commenced operations with a crushing capacity of 250 tons per day, but a present tankage capacity of only 85 tons. Additional tanks are being erected, and in 60 days the tankage capacity will be equal to the crushing capacity. The present value of the ore is $12.80 per ton, the silver contents being about 5 oz.

VIRGINIA.

WISE COUNTY.

VIRGINIA COAL AND IRON COMPANY.—This company recently purchased a large tract of coal timber land near Big Stone Gap, from Harris & Robinett, which, it is said, will be held for later development, the company's object being to secure the best of the land of that entire section.

WYTHE COUNTY.

CROZER IRON COMPANY.—This company, of Roanoke, has secured by lease the iron ore properties of Richard Wood, of Philadelphia, located on the Cripple Creek branch of the Norfolk & Western Railroad near Ivanhoe, and will operate the mines.

WASHINGTON.

STEVENS COUNTY.

COMSTOCK EXTENSION MINING AND MILLING COMPANY.—This company was recently incorporated by P. Brennan, M. Brennan and J. W. Langdon, the capital stock being $200,000, divided into 200,000 shares. The property is situated on the La Fleur ledge, in conjunction with the Comstock mine.

ELSIE ANN.—George P. Meinhart is developing this claim, eight miles from Chewelah. The shaft is down 16 ft. The ore is copper, carrying some gold. There are four veins on the property, the main vein being 6 ft. wide.

FOREIGN MINING NEWS.

BRITISH COLUMBIA.

TRAIL CREEK DISTRICT.

(From Our Special Correspondent.)

ORE SHIPMENTS.—The quantity of ore shipped from Rossland mines from January 1st to April 3d inclusive amounted to 15,031 tons. The quantity of ore milled in the camp during the same period was 1,460 tons, making a total output for the period named of 16,491 tons.

BRITISH GUIANA.

GOLD EXPORTS.—Exports of gold from the colony from January 1st to March 15th amounted to 15,401 crude oz., equal to 13,187 fine oz., or $272,571. This shows a gain of $29,534, or 10·8% over the corresponding period in 1896.

CANADA.

The Dominion government has determined upon a step that will have an important influence upon the development of the rich gold-fields of the Yukon country. A commission will be appointed to go there as soon as travel permits, and organize a government for the territory and report on the existing conditions. The reports of Mr. Ogilvie, of the Geological Survey, who is wintering there, will show that the gold-fields of that country far surpass in richness and ease of access anything on the continent. The chief difficulty is not the winter cold, but the trouble of getting supplies into the country.

CHILE.

SCHWAGER MINES.—At these coal mines at Coronel, an important work is in progress in connection with the development of the mining property. This consists of two openings the dimensions of which are 8 × 12 ft. They are about 33 ft. apart and are connected every 196 ft. by a drift for ventilation. The Ingersoll-Sergeant Drill Company, New York, has recently received a report of the performance of its rock drills in these tunnels. Notwithstanding some disadvantages that prevented a thorough testing of the capacity of the drills it is a very creditable record. In the first place those in charge of the work had very little confidence in the ability of the rock drill, as they had never seen one before, but they were afterward very well pleased at the progress that was made. The drill runners, P. J. Torsney and Geo. T. Hawke, were unable to speak the language of the country, but even that was not an obstacle enough to deter them from making the following record during the period between May 3d, 1896, and January 10th, 1897. The work of four Ingersoll-Sergeant rock drills in 197 days of 24 hours each was as follows: Incline No. 1, 493 m. (1,617·4 ft.); No. 2, 495 m. (1,524·9 ft.); total, 988 m. (3,242·3 ft.). This gives an average of nearly 5 m. per day. Two machines are worked in each heading; when the drilling is finished the drills are hoisted out and carried a distance of nearly a half mile to the other side. The ventilating drifts are 6 ft. high by 6 ft. wide, and by placing two machines in each incline the communication is made in 24 hours. Eleven of these crosscuts or drifts have been driven. In view of the fact that it was necessary to instruct green men in handling the drills and the other difficulties encountered the showing made above is certainly a most excellent one. A complete plant of mining machinery consists of three straight-line Class A air compressors and 10 D 24 rock drills was furnished to the Schwager Coal Mining Company by the Ingersoll-Sergeant Drill Company, of New York.

INDIA.

HYDERABAD.

WONDALLI GOLD MINING COMPANY.—It would seem that there is the probability of another gold field being opened up in India, says the London *Statist*, as approximately little over 200 miles northward of the Mysore Colar gold field there is represented to be an area of country similar in character to the Mysore District, and about 1,000 square miles in extent. This new ground likewise contains many traces of ancient diggings. Little has been heard of the new field, except that the ground landlords, the Hyderabad-Deccan Company, in October, 1895, parceled off an area of 837½ acres to a subsidiary company, formed with a capital of £300,000, of which a moiety in shares represents the purchase price, and of the balance of 150,000 shares, 76,352, issued for working capital, are in the hands of the public. Prior to the formation of the company a considerable amount of exploratory and some amount of development work was done, and there being six shafts sunk on the property, attaining various depths, and proving the existence of several reefs, generally running east and west. Some of these reefs are reported of a fair size and richness, in particular one reef of about 5 ft. width, with average assays of 1 oz. of gold to the ton. Shortly after the acquisition of the property a considerable amount of plant was ordered and there has been erected a 30-stamp mill, with power to run a considerably larger number of stamps. This mill is expected to be in operation soon and recently there have been received on the property rock drills for accelerating development. The material for tramways is on the ground, it being intended to connect the various shafts with the mill by tramlines two or three miles in extent. The position of the Wondalli property is in the southwest corner of the state of Hyderabad, the district owned being the Raichore-Doab gold fields, and the company's property is about 35 miles from Raichore.

MEXICO.

DURANGO.

CANDELARIA GOLD AND SILVER MINING COMPANY.—This company, of New York, has been formed to operate in the mining district of San Dimas, with a capital of $400,000. The directors are Mark Birmingham, Joseph Hover and Chas. A. Reed, of New York City.

ONTARIO.

RAT PORTAGE DISTRICT.

(From Our Special Correspondent.)

BATH ISLAND.—A company has been formed of Toronto capital to work this proposition, which is said to be an immense body of low-grade ore. A contract has been let for 150 ft. of sinking and drifting.

COLCLEUGH GOLD MINING COMPANY.—La Mascotte, on Camp Bay, is being operated by this company of Rat Portage. The drift has been driven into the hill 60 ft., and the ore encountered has caused a sensation. Specimens submitted to your correspondent for examination were wonderfully rich in visible gold.

GOLDEN FISSURE MINING COMPANY.—This is a New York aggregation under the presidency of J. F. Sill. The property is a half mile north of the Sawbill, and the shaft is 60 ft. deep. They have struck what they consider to be a continuation of the Hammond-Folger dike.

YUM YUM.—The owners have secured the old Dick & Banning water power at Keewatin, upon which they will establish a 40 or 50-stamp mill to treat the ores of the different properties they have secured on the Lake-of-the-Woods. If conditions warrant it power will be added to treat any custom work which may be forthcoming.

QUEENSLAND.

GOLD PRODUCTION.—The Mines Department gives the total production of gold in February at 54,500 crude ounces, and for the two months ending February 28th at 99,103 crude ounces. Of this total 96,463 oz. were from quartz mines and only 2,644 oz. from placers or alluvial workings. The total tonnage of ore reported worked for the two months was 78,774 tons, giving an average return of 1·23 oz. per ton. The chief district productions were: Charters Towers, 33,813 oz.; Crocodile Creek, 26,267 oz.; Croydon, 15,655 oz. The working of tailings in the Croydon and Charters Towers districts continues, with considerable yield.

SOUTH AFRICA.

TRANSVAAL.

LANGLAAGTE DEEP MINE.—A cable from Johannesburg says that on April 14th an explosion of dynamite occurred in this mine. Much damage was done; 8 white men and 26 natives are reported killed. No details of the accident have been received.

LATE NEWS.

MR. W. DE L. BENEDICT, mining engineer, has gone to Nova Scotia on a professional trip. He will return about May 1st, and will then remove his office to No. 31 Nassau street, New York.

YORKVILLE COAL MINE.—A despatch from Bellaire, O., says that the hill immediately over the

mouth of the Yorkville mine, seven miles north of that city, gave way April 15th, and 7,000 tons of dirt and rock crashed down, completely closing up the entrance of the mine and breaking down the archway for 100 ft. A driver named Jeffrey was entombed, and was not rescued until several hours afterward.

COAL TRADE REVIEW.

NEW YORK, Friday Evening, April 16.

Statement of shipments of anthracite coal (approximated) in tons of 2,240 lbs., for the week ending April 9th, 1897, compared with the corresponding period last year:

	1897. Week.	1897. Year.	1896. Year.
Pennsylvania Railroad	50,634	991,725	1,052,193

PRODUCTION OF BITUMINOUS COAL in tons of 2,000 lbs. for week ending April 9th, and for years from January 1st, 1897 and 1896:

Shipped East and North:	1897. Week.	1897. Year.	1896. Year.
Allegheny, Pa.	47,719	623,863	649,280
Barclay, Pa.	‡161	9,126	13,421
Beech Creek, Pa.	§81,402	997,666	943,396
Broad Top, Pa.	8,016	111,158	137,092
Clearfield, Pa.	87,795	1,283,771	1,347,901
Cumberland, Md.	77,975	929,287	1,487,236
Kanawha, W. Va	‡127,847	1,026,993	1,073,629
Phila. & Erie	663	143,017	13,920
Pocahontas Flat Top	†87,779	399,067	983,551
Totals	519,657	5,523,948	6,649,426

† For week ending March 27th.
§ For week ending March 31st.
‡ For 10 days ending March 31st.

Shipped West:	1897. Week.	1897. Year.	1896. Year.
Monongahela, Pa.	21,863	348,045	259,392
Pittsburg, Pa.	29,546	507,675	528,724
Westmoreland, Pa.	47,160	516,312	535,738
Totals	98,569	1,372,032	1,323 854
Grand totals	618,226	6,895,980	7,973,280

Production of coke on line of Pennsylvania Railroad for the week ending April 9th, 1897, and year from January 1st. 1897, in tons of 2,000 lbs.: Week, 82,861 tons; year, 1,210,604; to corresponding date in 1896, 1,336,447 tons.

Anthracite.

The characteristic of the hard coal market is the sameness of the conditions that have existed for the past month, which, it may be added, are almost sure to be the conditions for another month or six weeks to come. The companies have been mining the same amount of coal monthly since February 1st, which the market has absorbed with more or less regularity, so business has necessarily been much the same week after week. The interest was centered mainly on the subject of prices, which were none too stable at any time during the period just referred to, and yet never wavered materially from the course that had been laid out for them. At this time their stability is more pronounced than at any previous time in 1897. The general tone is firmer, and the producing interests with reason feel better satisfied with conditions as they now are.

The tonnage for each month is not considered public property by the coal companies, yet the figures find their way into print with regularity. Those recently published as the tonnage for March were 2,542,000 tons, which is said to be several hundred tons below the correct amount. The excess divided among the many producers shows an extremely close adherence to the predetermined output. Pea and buckwheat coal continue scarce, and are in good demand, which is also true of one or two of the larger sizes. In general it is said the demand at present is for the harder coals, with a corresponding decrease in sales for the free burning varieties. Prices according to the circular are $3.75 for broken, $4 for egg and chestnut, and $4.25 for stove.

NOTES OF THE WEEK.

A number of parties interested having protested against the new form of statement adopted by the Reading Company, the company has issued another, giving the total earnings and expenses as heretofore, though in a slightly modified form. The statement for the Philadelphia & Reading Coal and Iron Company is as follows for February and the three months of the fiscal year from December 1st to February 28th:

	February.	Three Mos.
Earnings	$1,510,195	$4,974,959
Expenses	1,611,452	5,137,802
Deficit	$101.257	$162.843
Improvements	31,861	116.906
Total deficit	$133,118	$179,749

For the three months the gross earnings show a decrease of $599,190 from last year, while the expenses decreased $474,876.

Bituminous.

The Atlantic seaboard soft coal trade is in a quiet condition, with more coal at the shipping ports than the orders coming forward can take care of, nearly all operators having cars standing at the shipping ports up to the limit allowed them by the railroads. The condition of the coal market is shown by the vessel market, where, although the supply of vessels does not seem to be quite up to the demand of the meager order supply, yet freights are weak and, if anything, receding. The orders in hand seem to be of an urgent character, showing that the consumer has waited until the last moment before putting in his orders. Some heavy shipments are being made from the Virginia and Maryland ports as compared with Philadelphia, but it is thought Philadelphia will show better later in the season. The shipments to the far East are all upon the larger class of contracts in which from appearances regular season charters of the larger class have been made. In Sound business the lack of craft offering makes the dealers and consumers take a block of coal every little while from the New York harbor shipping ports, which is done only because of the urgent necessity of the consumer in question.

New York harbor trade is quiet. All-rail trade keeps quite active and the tonnages going forward in this line of trade are proportionately large. The Chesapeake & Ohio Canal has opened and some boats have been loaded and are on it. It is to be noted that the shippers by this line are practically all Baltimore & Ohio or local interests.

Transportation is up to all demands; operators would rather see at this time a slower service, if anything, as nearly all of them have quantities of coal standing at the shipping ports. Car supply is equal to all requirements, though the railroad transportation superintendents are exercising close supervision over those who have any large quantities of coal standing at tide.

We quote current rates of freight from Philadelphia to Boston and Salem, 60@65c.; Portland, Providence, New Bedford and Sound ports, 60c.; Wareham, 75c.; Lynn, 70@85c.; Newburyport, 75c.; Portsmouth, 65c.; Dover, $1.05 and towage; Saco, 90c. and towage; Bath, 65c.; Gardiner, 65@70c. and towage; Bangor, 65@70c. Five and 10c. above these rates are asked from Baltimore, Norfolk and Newport News.

Buffalo. April 15.

(From Our Special Correspondent.)

The market conditions for anthracite coal are unchanged, as regards prices, demand and supply. The weather unsettled, alternating from freezing to temperate, with occasionally rain and snow and sharp cold wind.

Bituminous coal in better demand as vessel men require fuel, navigation having opened and doubtless for a permanency. Quotations unchanged. Supply more than adequate for the requirements of manufacturers and others. The Welland Canal is expected to be opened April 20th.

On April 7th a vessel laden with coal left Oswego for Toronto, the first of the season.

The propeller *City of Berlin* from Chicago passed the Straits of Mackinaw at 8:30 p. m. April 8th and arrived at Port Huron early April 10th. The first grain vessel to arrive here was the *Aragon*, from Toledo at noon April 12th; since others have entered port.

Our city officials will not purchase coal for the year until May, thinking that prices will decline.

No charters reported on coal at Buffalo yet. It is said, however, a propeller will take a cargo for Duluth or Superior at 15c.

A contemporary perpetrates the following: "The cashier of the coal office has lost his job." "How did that happen?" "He rushed into the office and told his employers he had heard a robin."

Chicago. April 14.

(From Our Special Correspondent.)

Anthracite hard coal continues in small demand; the aggregate tonnage of the week of coal sold in and outside of Chicago would foot up a small total. There is one thing to be said and that is that the past three months showed an increase in tonnage over 1896, though the extent of the gain is not heavy. Hard coal stocks in this city are large but there is much effort apparently being made to maintain prices. Circular prices are for grate, $5.85; egg, stove and chestnut, $5.60.

Bituminous.—Soft coal is being bought in fair quantities by manufacturing and other concerns. Industrial enterprises are apparently on the move, for there is a much greater demand at this time than there was last year. Labor troubles at the mines are being looked for, and coal is being rushed to town in anticipation. For some time past prices on soft coal have fluctuated greatly, until now it really looks as though the average dealer was in business for the love of it only, for it is hard to observe where, at the prevailing prices, there is any profit.

Coke.—Sales are not large, though there does appear a slight increase from week to week. Prices are fairly firm.

Pittsburg. April 15.

(From Our Special Correspondent.)

Coal.—The situation has shown but little change since our last. The Ohio River being in good order, there was a liberal coal shipment to the lower ports, as follows: 138 coal-boats, 286 barges, 19 fuel-boats, containing 7,000,000 bushels coal, towed by 41 steamers. First Pool miners have gone to work. The Hays Coal Works, at Six-mile Ferry, resumed this week; the 300 miners employed there are working at the rate of 2¼c. per 100 bush., though a reduction is threatened by reason of cuts being made in the Fouth Pool, where a difference of ¼c. is supposed to exist. The Jones interests have taken a contract for 100,000 tons of lump coal and 60,000 tons of slack for the Cuddy-Mullen Coal Company, of Cleveland, O. The coal will come from their mines in the Monongahela Division of the Pennsylvania Railroad. The Detroit Gas Company has placed an order for 11,000 tons of mine run coal with Osborne, Seager & Company, and for 5,000 tons of slack with the same company.

The Jutte Company has closed its mines owing to a difficulty with the men. Several mines in the Second pools are closed, the men refusing to accept a decline. Conditions in the railroad district show no material change, although a slight increase in the output is perceptible.

Connellsville Coke.—In the coke trade there has been a wholesale blowing out of ovens last week, but the H. C. Frick Coke Company balanced the production by better working time at the different plants. The Frick Coke Company banked 340 ovens. The report of the operations and output of the region shows 18,109 ovens, 10,484 of which are active and 7,625 idle, the estimated production for the week being 105,475 tons, being a decrease of 1,500 tons. In the running order of the ovens in blast last week 4,776 ovens made six days; 5,594 ovens five days; 621 ovens made four days, and 50 ovens, the Semet-Solvey, made six days, an average of 5·39 days as against 5·41 days the week previous. The new coke plant of the Uniontown Coke Company, which is being erected at Smithfield will soon be completed and put in operation. The company has a good tract of land, and talk of erecting 10 new plants of 150 or 200 ovens this summer. The coke shipments from the region for the week amounted to 6,245 cars, against 6,238 cars the preceding week. The distribution was as follows: To Pittsburg, 2,490 cars; to points west, 2,660 cars; sent east, 1,095; total, 6,245. Cars, circular price, $2.00; sales $1.50@$1.75.

Jones & Laughlins will build 160 ovens at the Eliza furnaces of the Beehive sort, which will cost $30,000; have 520 coke ovens of the old Beehive type in operation.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, April 16, 1897.

Pig Iron Production and Furnaces in Blast.

Fuel used.	Week ending Apr. 17, 1896. F'ces.	Tons.	Apr. 16, 1897. F'ces.	Tons.	From Jan., '96. Tons.	From Jan., '97. Tons.
Anthracite.	44	20,250	29	17,800	498,(98	282,886
Coke	139	170,370	109	150.650	2,627,139	2,166,614
Charcoal	13	5,200	17	5 450	80,440	85,986
Totals	196	195,820	155	173,850	3,205,677	2,535,486

Some people say that the iron market just now is a waiting one. It is hardly that, but rather a hesitating one. The trade is in a condition where a comparatively small impulse would send it up; and it would not take much to start it downward pretty rapidly. Production keeps up well, and sales are fair, but competition is extremely keen, and prices unprecedentedly low. We spoke last week of $14.50 billets at Pittsburg. This is now an accepted price, and we hear that $14 per ton at mill has been offered for steel billets, at first refused and then—taken into consideration. In pig iron the Southern furnaces especially are selling at buyers' prices—and Northern furnacemen are not refusing a good customer's offer. It is said that at least one lot of gray forge has been sold at $5.75 at Alabama furnace; and $6.25 is named for No. 2 soft, same delivery.

For finished products demand has been only fair. Too many mills are hunting for work to permit any increase in prices. Export business is keeping some works busy, and a good many iron men are beginning to look abroad for trade.

The stocks of pig iron reported on hand unsold on April 1st were 1,025,831 tons. This is an increase of 2,228 tons only over March 1st, but of 122,188 tons over January 1st.

The American Pig Iron Storage Warrant Company reports the following, for the quarter ending March 31st:

First quarter.	Rec'd tons.	Deliv'd tons.	In yard tons.
1897	24,800	8,600	641,400
1896	4,800	3,300	323,100
1895	13,900	3,300	368,500

For the 15 days of April, 1897, the receipts were 2,900 long tons; deliveries, 3,700 tons, and stock on hand in yard 640,600 tons.

NOTES OF THE WEEK.

The Cambria Iron Company has announced that it will issue $2,000,000 of the authorized $2,500,000 of bonds. Of the proceeds $1,300,000 will be used to pay off loans, and $700,000 to purchase ore property in the Mesaba district, and for improvements in the works.

The Southern Iron Committee reports the shipments of pig iron and cast-iron pipe for the month of March, 1897, as follows:

District.	Pig iron.	Cast-iron pipe.
Birmingham	47,454	2,579
Anniston	2,620	1,118
Nashville	2,013	....
Sheffield	2.718	....
Chattanooga	16,752	1,254
Middlesboro	312	....
Total tons	71,869	4,951

The shipments thus far made this year are very nearly the same as the average for last year.

New York. April 16.

The local iron market shows little change this week, and most of the business that has been done has been under negotiation for some time. The trade is suffering from existing low prices and competition for what business is being offered. Buyers of structural material are small in number, but will probably become more numerous as the plans that are now being prepared for several large buildings in this city are completed. We understand a contract for a very large building has been taken by a local firm this week, but as yet the material for it has not been ordered.

The Brooklyn Heights contract for some 4,500 tons of girder rails has now been let, and of it the Pennsylvania Steel Company received 2,500 tons of 94-lb. rails, and Messrs. William Wharton, Jr. & Company, of Philadelphia, the other 2,000 tons. For plates and similar material we learn that there are a few large orders pending for gas works in the neighborhood of New York.

In the export line actual business is limited. Germany is understood to have ordered shipped this week several carloads of machinery, the larger part of which will be used in the iron industry. It is said that a Southern firm has received recently an inquiry from Calcutta, India, for a large quantity of pig iron, but the order has not been accepted yet on account of the scarcity in freight room. Within the last week a quantity of steel billets were shipped to Antwerp and rails to Japan. Foreign mills have secured an order for 10,000 tons of steel rails for China, and 5,000 tons for Mexico, for which American firms are said to have bid.

Pig Iron.—This market continues to be somewhat depressed by existing low prices, and competition among furnacemen. Consumers are still holding off from buying in large quantities, and with the exception of an order for 4,000 tons sales this week have been small in volume. The Southern furnaces, especially those in the Birmingham district, are offering pig iron much below market quotations. Some sales are said to have been made at very low prices. In Northern iron, however, competition is apparently not so intense, and, consequently, prices do not show any fluctuations.

Quotations for Northern brands are now $12@$12.50 for No. 1. foundry; $11.25@$11.75 for No. 2 foundry; $10.50@$10.75 for No. 2 plain, and $10 25@$10.50 for gray forge. For Southern iron we quote: No. 1 foundry, $10.75@$11; No. 2 foundry, $10.25@$10 50; No. 3 foundry, $10@$10.25; No. 1 soft. $10 50@$10.75; No. 2 soft, $10.25@$10.50; forge, $9.50@$10; basic pig, $10.50@$10.75. All prices are for tidewater delivery.

Cast-Iron Pipe.—Several small orders have been taken, and the Brooklyn contract is still pending. Prices continue low.

Spiegeleisen and Ferro-Manganese.—Trade continues quiet, and prices are as follows: Ferro-manganese, 80% domestic, $46@$46.50 per ton, delivered at buyer's mill. Spiegeleisen, 20%, $19@$19.50, same delivery.

Steel Billets and Rods.—Business is light and mill prices are unchanged at $15.50@$16 per ton for billets and $21.75@$22 per ton for rods.

Merchant Iron and Steel.—Trade continues unchanged, and we quote: Common bars, 1·05@1·10c.; refined, 1·10@1·25c.; soft steel bars, 1·15@1·25c. Other quotations are: Steel hoops, 1·37½@1·40c., base; steel bands, 1·30@1·40c., base; steel axles, 1 60@1·75c.; links and pins, 1·60@1·70c.; tire steel, 1·70c.; spring steel, 1·95@2·15c.; light cotton ties, 50c. per bdl. at mill. All prices are for delivery on dock New York.

Plates.—A few fairly large orders are still open; otherwise business is quiet. We quote for universal mill plates 1·20@1·30c. For steel plates prices are: Tank, 1·20@1·30c.; boiler shell, 1·30@1·35c.; flange, 1·40@1·50c.; firebox, 1·60@1·75c., and 2·25@2·50c. for locomotive firebox; according to quality. Charcoal iron plates are 2·25c. for shell, 2·75 for best flange and 3·25 for firebox. Some makers are asking 0·05c. higher for plates. Rivets are 3@3 25c. for iron and 1·80@2c. for steel. Prices are for tidewater delivery.

Structural Iron and Steel.—Trade has been quiet this week and prices remain unchanged. We quote for angles, 1·20@1·30c.; tees, 1·60@1·70c.; channels, 1·70@1·80c. The price of beams, New York delivery, is 1·70c. for ordinary sizes, 1·85c. for 20-in., and 1·95c. for 24-in., car lots. For small quantities 0·05@0·10c. higher is asked.

Steel Rails and Rail Fastenings.—Standard section steel rails are quoted at $20 at mill, and girder rails, $23.

Quotations for rail fastenings are: Angle bars, 1·15@1·25c.; spikes, 1·60@1·65c.; bolts, 1·85@1·95c. for square nuts and 1·90@2c. for hexagon nuts.

Wrought-Iron Pipe.—Market is quiet locally. Discounts are as follows for plain pipe, out of store: 1¼ in. and over, 67, 10, 10, 10, 10 and 10%; 1¼ in. and under, 57, 10, 10, 10, 10 and 10%. Galvanized pipe, 1¼ in. and over, 55, 10, 10, 10, 10 and 10%; 1¼ in. and under, 50, 10, 10, 10, 10 and 10%. For fair-sized orders these discounts are made with an additional 5 and 7%, according to quantity. Boiler tubes, 1 in. to 2¼ in., 70, 10 and 5%; 2½ in. up, 75 and 5%. Cold-drawn seamless steel tubes, 60%.

Nails.—Both wire and cut nail manufacturers report a good demand. The wire nail concerns are especially busy now, and we understand a large order was closed by a local house this week. Prices are well maintained, and for wire nails are $1.40@$1 45 per keg f. o. b. mills. Eastern prices for cut nails are $1.40 per keg f. o. b. New York; $1.42 for Boston and New England; $1.38 for Philadelphia, and $1 35 for Baltimore.

Old Material.—Local business is quiet, and conditions are in buyers' favor. Export trade, however, continues active, and there has been a sale of 1,250 tons of old standard section tees, at a price equal to $11 per ton, delivered to steamer at New York. Of old rails, we note a sale of 750 tons of heavy section ties, at a price equal to $12.50 per ton same delivery. No. 1 wrought scrap is being fairly well maintained as regards prices for specially selected, and a sale of 50 tons has been made at $11 per ton f. o. b. cars New York. Quotations for old material are as follows: Steel rails, $10@11.50 per ton, New York; iron rails, $11@12.50, same delivery; No. 1 wrought scrap, $10@$11.50 f. o. b. cars or to vessel at New York; railroad scrap, $12@$13 delivered at buyer's mill.

Cast Scrap.—Business continues unsettled as regards prices. Quotations for good machinery scrap are $10@$11 per ton; ordinary cast scrap, $9@$10; stove-plate and mixed, $6@$7. Old car wheels, $9@$10 per ton, delivered at buyer's works.

Cleveland. April 14.

(From our Special Correspondent.)

Iron Ore.—Although there have been no sales of new ore yet, there is a general readiness among the brokers to begin the business of the coming season. Those who control the output of the old range ores have held several conferences, and as a result they have agreed upon quotations for the various grades, as follows: Specular and magnetic ores, Bessemer quality, $3@$3.75; specular and magnetic ores, non-Bessemer quality, $2.50@$2 75; hematite ores, Bessemer quality, $2.50@$3.00; hematite ores, non-Bessemer quality, $2.00@$2.50. The trading in old ores is at a standstill, as the buyers seem to be waiting the start of another year.

No contracts have as yet been made with vessel owners, no new ores having been sold. It is generally believed that the ruling lake freight rates during the season will be 70c. a ton from the head of Lake Superior to Ohio ports, 65c. from Marquette and 55c. from Escanaba.

Pig Iron.—Notwithstanding the fact that dealers say there has been no sale for pig iron during the past week, they make the same quotations for all varieties: Lake Superior charcoal, $13.50; Bessmer $10 65; No. 1 foundry, $11.15; No. 2, $10.50; No. 1, Ohio Scotch $11.15; No. 2, $10.65; Mahoning and Shenango Valley neutral mill irons, $9.75@$10; Mahoning and Shenango Valley red short mills, $9.75@$10.

Pittsburg. April 15.

(From Our Special Correspondent.)

Raw iron and steel business remains very dull. There seems to be but little life in any department; with a slight change prices are barely steady, there being no improvement in operations or demand, while competition is keen. The fourth month of the present year has so far failed to meet expectations as regards business generally, particularly as relates to iron and steel products. While certain business men think they see a little improvement ahead of them, as yet there is nothing very tangible about it. At the same time there is more disposition to place orders, but as the offerings are large, buyers are very deliberate in their movements, and if one seller is more pushing than another to secure the business, the chances are that the inside prices have to be accepted. The fact of the matter is that supplies are excessive, and until there is a material increase in the demand the market cannot rally much. The demand for wire nails continues very active, all the mills being run to their full capacity; prices have again advanced from $1 40@$1.45 in car lots at the mills; jobbers are getting $1.55@$1.60 for small lots. Most of the mills, have orders booked that will keep them busy for a month or six weeks. An advance in the price of other wire products is daily expected. The strike of the Nail Mill Works at Cleveland and of the rod men at the Beaver Falls plant is still on. The Braddock Works are running day and night and Sundays filling orders that were booked for the Beaver Falls plant.

There seems to be a better feeling manifested in manufactured iron and steel, especially in plates and structural material, and some of the mills are working on fair-sized orders. For ores, so far as could be learned, there have been no contracts closed; although there has been a material reduction in prices, buyers do not seem to see their way clear to purchase their year's supply. Furnacemen are holding back until the course of the iron market is more settled. Some of them state that unless there is a change for the better after their present stock of ore is exhausted they will blow out and wait for a brighter outlook.

While the volume of transactions showed up fairly well, prices for certain descriptions were the lowest for years; for instance, Bessemer pig sold in Pittsburg as low as $9.90, and sales in the Valley are reported at $9. Mill iron is $8.90 lowest. Steel billets show a further decline, lowest point $14 60, and it must be remembered that the sales reported were of metal made from last year's ores, which cost considerably more than ore can be purchased for at the present time.

COKE, SMELTED, LAKE AND NATIVE ORE.

Tons.		Cash.
4,000	Bessemer, May, June, Valley	$9.15
2,500	Bessemer, May, June, July, Valley	9.10
1,500	Bessemer, April, Valley	9.20
1,250	Bessemer, April, May, June, Pitts.	10.15
1,000	Bessemer, April, Pitts.	10.10
1,000	Mill Iron, April, May, Pitts	9.00
750	Mill Iron, April, Pitts	9.10
600	Mill Iron, April, Valley	8.25
500	Mill Iron, April, Pitts.	8 90
500	Mill Iron, April, Valley	8.25
500	Bessemer, April, Valley	9.10
200	Mill Iron, prompt, Pitts.	9.10
100	No. 2 Foundry, spot, Pitts.	9.10
25	No. 2 Foundry, Pitts.	10.50
25	No. 2 Foundry, Pitts	10.50

CHARCOAL.

50	Cold Blast, Extra, Pitts.	$28.00
50	Cold Blast, Pitts	22 00
50	No. 3 Foundry, Pitts.	15.30
50	No. 4 Foundry, Pitts.	13.30
50	Cold Blast, Pitts.	22.50

BLOOMS, BILLETS, SLABS.

2,000	Billets, May, June, Pitts.	$15.25
1,000	Billets, May, June, Pitts.	14.90
1,000	Billets, April, May, June, Pitts	14.85
650	Billets, April, May, Pitts.	15.25

Tons.		Cash.
500	Billets, April, Pitts.	14.60
200	Billets, open-hearth, April, Pitts.	16.75

OLD RAILS AND SCRAP.

1,000	Steel melt scrap, gross, Pitts.	$10.65
500	Wrought turnings, net, Pitts.	6.50
500	No. 1 Wrought net, Pitts	10.00
500	No 1 Cast gross, Pitts.	9.00
400	Steel rails, Pitts,	10.50
100	No. 1 Wrought, net, Pitts.	10.50

SKELP IRON.

1,000	Narrow grooved, Pitts.	$1.10 4 m
700	Wide grooved, Pitts	1.05 4 m.
550	Narrow grooved, Pitts	1.05 4 m.
500	Sheared, Pitts.	1.17½ 4 m.

SKELP STEEL.

750	Narrow groov'd, Pitts.	$0 95 4 m.
600	Shear'd, Pitts.	1.00 4 m.
500	Wide grooved, Pitts.	0.95 4 m.

MUCK BAR.

550	Neutral, delivered, Pitts.	$19.00

BLOOMS, BILLETS, BAR ENDS.

1,000	Billet ends, Pitts.	$10.50
500	Billet ends, Pitts.	10.75

SHEET BARS.

1,000	Delivered, Pitts.	$17.10
1,000	Delivered, Pitts.	17.25

STEEL WIRE RODS.

1,000	At mill, Pitts.	$20.00
1,000	At mill, Pitts.	20.25

FERRO-MANGANESE.

75	80%, delivered, Pitts.	$46.00

Philadelphia. April 16.

(From Our Special Correspondent.)

Pig Iron.—There are symptoms that the extreme limit of production has been reached and that restriction will occur in some quarters unless distribution should stimulate the hopes of makers. Scarcely any forward requirements are being covered. Current wants only are being sparingly filled. Makers are powerless to offer additional inducements. We hear rumors of demoralization in some quarters, but our local furnace interests say there can be no further retrogression of prices. The silence is ominous. Lower freights have made no difference in business. A few makers have refused to follow the market in its downward course and are not quoting prices except where solicited. Bessemer is offered at $12.50; basic at $11; low phosphorus, $16; poor mill iron, $10; standard, $10.50; No. 2, $11.25@$11.50; No. 1, $12·25.

Billets.—Lower freights and general dullness have crowded billets to $17 and just as they touch that figure buyers get freightened and won't talk price, but one or two have said they might be induced to come out of their holes at $16.50. The market is dull, but the billet stock is being steadily worked up.

Merchant Bars.—There has been some business done at terms which it is impossible to get either party to tell. Ordinary iron is 1c.; refined, $1.15c.; steel, $1.20c.; special, $1.30c. There is less iron being made in the country mills and as matters now look some mills may have to close altogether, though vigorous efforts are being made to get business.

Sheet.—Some mill owners claim a good run of small orders on galvanized for outside building purposes. Architectural iron is also coming into fair request. Prices were shaded last week on a good order.

Pipes and Tubes.—Butt-welded block is selling slowly. Galvanized is called for with some force, but the strongest feature of the market is in what manufacturers expect to do when long-promised work is at length entered upon. In a small way business is fair, but it does not crowd our mills.

Merchant Steel.—The distribution covers nearly all kinds, and the dealers are encouraged to hope for still more business.

Skelp.—It is impossible to find out whether there will be much new business done for a few days yet in connection with new trolley roads.

Plate and Tank.—There is a squeezing down of prices going on, which it is impossible to fix exactly. Rumors are around of cuts that no one can prove. There is something going on, and no one cares to talk. The few mills which are virtually monopolizing the business are certainly working very close to cost, but they get out by managing to keep a given capacity fully employed. Tank plates are 1.20c.; flange, 1,40c.

Structural Material.—More business coming along is strengthening hopes and clearing away the fog, but prices instead of hardening are being shaded terribly. For outsiders, these quotations are given: Angles, 1·20; fifteen-inch beams, 1·70. Constructing engineers are getting into considerable summer work.

Old Rails.—The sales show buyers are picking up rails at the recent drop. Iron rails have sold as low as $11.50 and steel at $10. Several parties are trying to make still better terms.

Scrap.—Quite a movement in scrap developed this week. Steel axles sold at $12; heavy steel scrap at $10; railroad scrap at $12.

Cartagena, Spain. April 3.

(Special Report of Barrington & Holt.)

Iron and Manganiferous Ores.—The exports of ore from this port have fallen off somewhat during March. Twenty-six cargoes were shipped, seven cargoes of which were of dry ore, 18 of manganiferous, and one cargo of 60% magnetic ore. Manganiferous ores of 10% and 12%, which were in great demand for a few months are not now so much sought after.

We quote for ordinary 50% Portman ore, 5s. 8d. per ton; special low phosphorus, 5s. 11d. Cartagena 50% ore, we quote, 6s. 2d., and special low phosphorus, 6s. 4d.@6s. 8d; specular iron ore, 60% iron and guaranteed under 0·03% phosphorus, 9s. 3d.; magnetic iron ore, containing 60% iron, 10s. 9d. per ton. For manganiferous ores we quote: No. 1, 20% iron and 20% manganese, 15s. 8d. per ton; No. 1 B, 25% iron and 17% manganese, 12s. 4d.; No. 2, 30% iron and 15% manganese, 11s. 4d.; No. 3, 35% iron and 13% manganese, 10s.; No. 4, 38% iron and 10% manganese, 9s. 2d.

Other Ores.—Shipments in March included 660 tons of blende and 10 tons of galena to Antwerp, 13 tons of ocher to London, 450 tons of iron pyrites to Marseilles.

METAL MARKET.

NEW YORK, Friday Evening, April 16, 1897.

Gold and Silver.

Prices of Silver per Ounce Troy.

April.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.	April.	St. Ex.	London Pence.	N. Y. Cts.	Value of sil. in $1.
10	4 87	28 7/16	61 7/8	.479	14	4.87 1/4	28 7/16	62	.480
12	4.87 1/4	28 1/2	62 1/8	.481	15	4.87 1/4	28 1/2	62	.480
13	4 87 1/4	28 1/2	62 1/8	.481	16	4.87 1/4	*	62	.480

* Holiday.

The presence in the market of a large Spanish order has given firmness to prices, but there seems to be no disposition to put the quotations up, simply an absorption of the silver as it is offered.

The United States Assay Office in New York reports the total receipts of silver at 61,000 oz. for the week.

Gold and Silver Exports and Imports

At all United States ports, February, 1897, and years from January 1st, 1897 and 1896:

	Coin and bullion.		In ores.		Total excess, Exp. or Imp.	
	Exports.	Imports.	Exports.	Imports.		
GOLD						
Mar.	$572,068	$884,166	$3,137	$519,429	I.	$858,390
1897..	1,280,709	1,835,487	89,998	1,040,952	I.	1,555,732
1896..	13,134,306	22,604,762	29,943	357,963	I.	9,798,416
SILV.						
Mar..	4,915,684	480 170	23,639	1,518,765	E.	2,940,388
1897..	13.573 800	2,120.179	246 700	4,962,284	E.	6,738,037
1896..	15,290,344	3,823,690	191,083	4,290,660	E.	6.367.677

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Average Monthly Prices of Silver

In New York and London, per ounce Troy, from January 1st, 1897, and for the years 1896 and 1895.

Month.	1897.		1896.		1895.	
	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.	London. Pence.	New York. Cents.
January	29·74	61 79	30·69	67·13	27·36	59·69
February	29·68	64·67	31·01	67·67	27·47	59·90
March	28·96	63·06	31·34	68·40	28·33	61·98
April	.....	.....	31·10	67·92	30·39	66·61
May	.....	.....	31·08	67·85	30·61	66·75
June	.....	.....	31·46	68·69	30·47	66·64
July	.....	.....	31·45	68·75	30·48	66·75
August	.....	.....	30·93	67·34	30·40	66·61
September	.....	.....	30·19	65·68	30·54	66·90
October	.....	.....	29·68	65·05	30·89	67·64
November	.....	.....	29·46	64·98	30·79	67·42
December	.....	.....	29·70	65·24	30·40	66 47
Year	.....	.....	30·67	67·06	29·53	65·28

The New York prices are always per fine ounce, or ounce of pure silver; the London quotation is per standard ounce, or for metal 925 fine.

Gold and Silver Exports and Imports, New York

For the week ending April 16th, 1897, and for years from January 1st, 1897, 1896, 1895, 1894:

	Gold.		Silver.		Total Excess, Exp. or Imp.	
	Exports.	Imports.	Exports.	Imports.		
We'k	$1,000	$12,231	$882,300	$18,203	E.	$822 866
1897..	1,658,911	1,101,293	11,890,943	606,417	E.	11,242,144
1896..	13,349,393	16,758,916	11.915.667	590,369	E.	7,915,775
1895..	30,286,264	14,071,907	9,167,042	426,011	E.	24,955,388
1894 .	14,281,0.3	4,610,433	12,522,536	491,612	E.	21,701,564

The gold exported for the week went to the West Indies, the silver to London. The gold and silver imported came chiefly from Central and South America.

FINANCIAL NOTES OF THE WEEK.

Business continues to hesitate, and signs of improvement are wanting. The tariff uncertainty is everywhere delaying the much-needed and desired recovery, and nothing better can be expected until this is removed. Even then there will be the shadow of a probable popular reaction and a reopening of the question before trade has fairly had a chance to accommodate itself to the last conditions.

The floods in the Mississippi Valley are causing the country a very considerable loss, in the immediate destruction of property and in preventing any crops this year from the flooded districts. The purchasing power of a considerable section of the country is destroyed for at least a year, and this must be felt in business.

Merchandise exports in March amounted to $87,271,531 and imports to $76,372,831, showing a balance of exports of $10,898,700. For the nine months of the fiscal year from July 1st to March 31st, the statement of the Bureau of Statistics of the Treasury Department is as follows:

	1896.	1897.
Exports	$678,241,057	$822,269,744
Imports	6 7,650,496	498,838,225
Excess, exports	$70,59 ,561	$323,381,519
Add excess of exports, silver		24,978,008
Total		$348,359,527
Deduct excess of imports, gold		66.662,067
Net balance of exports		$281,697,460

The exports of the fiscal year were among the heaviest on record, while the imports were unusually light. The gold and silver movement in detail will be found in the usual place at the head of this column.

Gold continues to come into the Treasury and the gold reserve is gradually increasing. This is a necessary consequence of the present situation. No gold is going out; we are producing nearly $5,000,000 a month, of which very little goes into circulation, and it naturally finds its way to the Treasury as a convenient place of deposit. The mints are busy coining gold. The coinage of silver dollars also continues at the rate of about 1,400,000 per month.

The New York Central & Hudson River Company and its leased line, the New York & Harlem, have arranged to convert their outstanding obligations into 3½% bonds as soon as possible. The present New York Central bonds pay from 5 to 7%; the new issue will amount to $100,000,000. The Harlem bonds are $12,000,000 in amount, all 7%. This shows the decline in interest rates in a marked way.

The President has announced the appointment of Senator Edward O. Wolcott, of Colorado; Hon. Charles J. Paine, of Boston, Mass., and ex-Vice-President Adlai E. Stevenson as commissioners to an international monetary conference. These appointments are made under the act approved March 3d last, "for the promotion of an international agreement for bimetallism," and by its provisions do not require confirmation by the Senate.

Exports of specie from San Francisco by water for the three months ending March 31st were as follows:

To	Silver.	Gold.	Total.
China	$1,280,699	$12,702	$1,293,401
Japan	1.719.770	.....	1,719,770
India	79,800	.....	79,800
Honolulu	43,522	100,000	143,522
Tahiti	3,300	.....	3,300
Mexico	.....	760	760
New York	154,402	11,167,600	11,322,002
Totals	$3,281,493	$11,281,062	$14,562,555
Totals, 1896	4,315,2o1	7,443,121	11,758,371

The increase this year was chiefly in gold coin shipped to New York. Of the silver shipped this year $1,645,850 was in bars; $1,427.149 in Mexican dollars; $13,670 in Peruvian sols; and $194,824 in United States coin. Of the gold $1,805 was in bars and dust, and the balance in United States coin.

The statement of the United States Treasury on Thursday, April 15th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	April 8.	April 15.		Changes.
Gold	$152,705,355	$154,438.521	I.	$1,733,166
Silver	19,903,799	21,111,286	I.	1,207,487
Legal tenders	26,288,144	25.968,476	D.	319,668
Treasury notes, etc.	25,499 658	24,359,420	D.	1,140,238
Totals	$224,396,956	$225,877,703	I.	$1,480,747

Treasury deposits with national banks amounted to $17,242,664, an increase of $336,829 during the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending April 10th, gives the following totals, comparisons being made with the corresponding weeks in 1896 and 1895:

	1895.	1896.	1897.
Loans and discounts	$481,023,100	$465,612,400	$502,512,600
Deposits	503,830,500	483,251,400	565,916,600
Circulation	13,141,300	14,341,300	15,589,200
Reserve:			
Specie	65,387,000	58 835,000	85,868,400
Legal tenders	75,493,400	79,884,100	101,780,800
Total reserve	$140,880,400	$138,719,100	$187.649.200
Legal requirement	125,957,625	120,787,850	141,479,150
Surplus reserve	$14,922,775	$17,931,250	$46,170,050

Changes for the week this year were decreases of $220,100 in loans and discounts, $3,309,900 in deposits, $112,600 in circulation, $119,900 in specie, $2,204,100 in legal tenders, and $1,496,525 in surplus reserve.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars and comparison is made with the holdings at the corresponding dates last year:

	Gold.	Silver.	Total.
Asso. Banks of New York	.....	.....	$85,868,400
1896	.....	.....	58,835.000
Bank of England	$181.989,425	.....	181,989 425
1896	237,219,200	.....	237,219,200
Bank of France	382,899,300	$244,051,200	626,950,500
1896	389,524,882	248,715,686	638,240,568
Imp. Bank of Germany	.....	.....	214,010.000
1896	.....	.....	217,739.000
Austro-Hungarian Bank	156,380,000	63,017.000	219,397,000
1896	131,350,000	63,756,000	195,106,000
Netherlands Bank	13,155.000	33,948,000	47,103,000
1896	13,115,000	34,685,000	47,800,000
Belgian National Bank	.....	.....	21,309,000
1896	.....	.....	19,612,000
Bank of Spain	42,642,000	52,640,000	95,282,000
1896	40,022,000	51,918,000	91,940,000
Bank of Italy	61.845,000	11,725,000	73,570,000
1896	63,015,000	10,305,000	70,320,000
Imp. Bank of Russia	606 375,000	.....	606,375,000
1896	435.995.000	.....	435.995.000

The return for the Associated Banks of New York is of date April 10th; all the others are of April 15th, except the Bank of Italy, February 28th, and the Bank of Russia, March 28th–April 10th. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England and the Bank of Russia report gold only. The Imperial Bank of Germany and the Belgian National Bank do not report gold and silver separately.

Shipments of silver from London to the East for the year up to April 1st are reported by Messrs. Pixley & Abell's circular as below:

	1896.	1897.		Changes.
India	£1,307,798	£1,220,450	D.	£87,348
China	363,150	44,512	D.	318,638
The Straits	116,882	46.793	D.	70,089
Totals	£1,787,830	£1,311,755	D.	£476,075

Arrivals for the week this year were £204,000 in bar silver from New York, and £6,000 from the West Indies, a total of £210,000. Shipments for the week were £190,150 in bar silver to India.

Indian exchange has been maintained in price, notwithstanding some decrease in demand. The Council bills sold in London amounted to 30 lakhs, and the average price obtained was 15·03d. per rupee. Bank rates for money continued high in India.

Prices of Foreign Coins.

The following are the latest market quotations for the leading foreign coins:

	Bid.	Asked
Mexican dollars	$ .48¼	$ .49¾
Peruvian sols and Chilean pesos	.44	.46
Victoria sovereigns	4.86	4.90
Twenty francs	3.86	3.90
Twenty marks	4.74	4.80
Spanish 25 pesetas	4.78	4.85

Other Metals.

Copper.—The week has been rather quiet throughout and not much business has been recorded, and in consequence of this inaction prices have again suffered to a slight extent. Some business in Lake copper has been reported from first hands at 11½c., but in the main buyers are not eager to provide

themselves at that figure and are holding off. Second-hand lots of ingots can be procured slightly cheaper. For electrolytic copper we have still to quote 10·80@10·90c. and cathodes at 10·55@10·65c., while casting copper quotations are quite nominal at 10¾@10⅞c. Exports continue on a large scale and are likely to go on so.

In Europe, where the markets closed on the 15th for the Easter holidays, a more or less flat tendency also prevailed, and the speculative sorts are quoted slightly lower at £48 17s. 6d.@£49 for spot and £49 2s. 6d.@£49 5s. for three months prompt, being a decline of about 7s. 6d. for the week. The demand for fine copper was somewhat better, but the business which has been done was mostly at slightly lower figures. It appears, however, that consumption continues very satisfactory indeed. We quote: English tough, £51 10s.@£51 15s.; best selected, £51 10s.@£52 5s.; strong sheets, £60; India sheets, £56 5s.@£56 15s.; yellow metal, 5d.

The following figures give the production (in tons of 2,240 lbs.) of copper in the United States and the exports from the United States for March and the three months ending March 31st:

Production fine copper, long tons:	March. 1897.	Three mos. 1896.	Three mos. 1897.
Reporting mines in U. S.	17,583	47,910	50,639
Pyrites and outside sources U. S.	700	3,600	2,100
Total production, long tons	18,283	51,510	52,739
Exports from U. S., fine copper	11,232	27,356	29,739

The United States production shows an increase this year of 1,229 tons, or 2·3%, while the export increased 2,383 tons, or 8·7% as compared with 1895.

Tin.—The market has been rather dull and depressed and not much business has been doing. Shipments from the East continue on a rather heavier scale than was anticipated; and besides the bi-monthly sales of Banka tin will now be regularly increased to 50,000 pigs. While last year sales amounted to about 6,700 tons, the sales for the present year will be 9,200 tons, and it is anticipated that there will be a still further increase. This has also had a somewhat depressing influence on the market. We have to quote for spot and April 13¼c. and for futures 13⅜c.

In London the price for spot declined to £59 17s. 6d.@£60, and for three months prompt to £60 10s.@£60 12s. 6d., with only a moderate business.

Exports of tin from the Straits Settlements for the two months ending February 28th are reported as below, in long tons:

	1896.	1897.
To Europe	4,424	5,532
To United States	3,428	1,906
To China	341	127
To India	700	258
Totals	8,893	7,823

There has been a decrease this year of 1,070 tons, or 12%, due chiefly to the smaller shipments to the United States. Those to Europe show a considerable increase.

According to the official Colonial Report the production of Banka tin in 1896 was 169,198 pikuls (10,245 long tons), against 129,591 pikuls (7,849 long tons) for the preceding year, showing an increase of 39,607 pikuls, or 30·5% last year.

Lead has been rather dull, and prices have been somewhat easier. Some sales were reported early in the week at 3·32½c., but at that price more interest was shown on the part of buyers, and the market closes somewhat firmer at 3·35c. The volume of business done, however, was not large.

Abroad lead has been easy, and soft Spanish is quoted £11 16s. 3d.@£11 17s. 6d., with English lead 5s. higher.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is dull at 3·12½c. for Missouri, and 3·17½c. for argentiferous brands. The market has rather an easy tendency, and, unless the demand increases, we would not be surprised to see lower prices.

Spanish Lead Market.—Messrs. Barrington & Holt write from Cartagena, Spain, under date of April 3d, as follows: Notwithstanding that silver has fallen 1d. per ounce, and argentiferous is quoted 2s. 6d. per ton lower in England, the high exchanges have kept the local quotations up, pig lead on wharf having averaged 63·05 reales per quintal of lead, 0·68 reales higher than the February average, silver being paid at 14.90 reales per ounce. The exports of pig lead from this port in March were 2,166,705 kilos. to Marseilles; 1,728,850 kilos. to London, and 1,645,983 kilos. to Newcastle; a total of 5,541,538 kilos. A shipment of 918 kilos. of silver ingots was also made to Marseilles.

Spelter has well held its own. The demand is slightly better. There being a keen competition for all orders presented, prices have not hardened perceptibly, and we have again to quote 4⅛@4·15c. New York for prime Western brands.

The market in London rules firm at £17 10s. for good ordinaries, and £17 12s. 6d. for specials.

The Cherokee-Lanyon Smelter Company again last week made a large shipment of spelter direct to Liverpool. This second shipment included 36 carloads of metal.

Antimony is unchanged and without much life. Cookson's is 7¼c., U. S. Star 7¼c., Hallett's 7c.

Nickel.—Business continues quiet, and no change in prices can be reported. We quote for ton lots 33½@36c. per lb., and for smaller orders 35½@38c. London prices are 14@16d. per lb., according to size of order. The London price is about on a parity with New York, allowing for the duty of 6c. per lb.

Platinum.—Prices are firm at $14@$15 per oz., New York. The London quotation is 55s.@56s. per oz.

For chemical ware, best hammered metal, Messrs. Elmer & Amend, New York, furnish the following quotations, the prices given being respectively for orders of over 250 grams, for orders of over 100 grams and less than 250 grams, and for orders of less than 100 grams: Crucibles and dishes, 54c., 55c. and 56c. per gram. Wire and foil are 52c., 53c. and 54c. per gram.

Quicksilver.—The New York quotation is unchanged at $39.75 per flask. The London price is £7 5s. per flask, with £7 4s. named from second hands.

Quicksilver receipts reported at San Francisco, in March, were 1,200 flasks; for the three months ending March 31st they were 3,638 flasks, against 10,637 for the corresponding period in 1896, and 8,156 flasks in 1895. Exports for the three months were: New Zealand, 10; British Columbia, 10; Central America, 360; Mexico, 1,087; total, 1,467 flasks, against 6 899 flasks for the first quarter of 1896. Last year the shipments included 2,500 flasks to New York, and 3,000 flasks to Hong Kong, to neither of which ports has a flask been sent this year.

The Minor Metals.—Quotations for these metals are given in the table below, the prices being for New York delivery:

Aluminum:	
No. 1, 98% pure ingots for re-melting, per lb	37@42c.
No. 2, 94% pure, " " "	31@34c.
Ingots from scrap, per lb	30c.
Rolled sheets, per lb	46c. up.
Aluminum-nickel casting metal, per lb	35@40c.
Bismuth, per lb	$1.30@$1.80
Phosphorus, per lb	50@55c.
Platinum, per oz	$14.50@$15.50
Tungsten, pure powder, per lb	70c.
Tungstic acid, per lb	45c.
Ferro-tungsten, 60% in ton lots, per lb	60c.

Variations in price depend chiefly upon the size of the orders.

New York.*	Week, April 8. Expts.	Imports.	Year, 1897. Expts.	Imports.
Aluminum, boxes	10	.....	919	.....
Antimony ore....short tons	.....	.....	.....	249
" regulus... casks	.....	.....	.....	183
Brass, old.....short tons.	.....	.....	198	95
Copper, fine .....long tons	†1,232	57	18,498	1,125
" matte .... " "	†125	.....	3,445	111
" ore..... " "	.....	.....	.....	.....
" sulphate.. " "	94	.....	3,729	.....
Iron ore..... " "	.....	.....	.....	.....
" pigs, bars, rods, etc. .. .... " "	1,701	.....	4,736	1,419
Iron pyrites..... " "	.....	.....	.....	5,570
" sulphate..... " "	.....	.....	.....	.....
Ferro-mangan'se " "	47	.....	315	52
Ferro-silicon..... " "	.....	.....	.....	.....
Manganese ore.. " "	.....	.....	.....	.....
Spiegeleisen..... " "	.....	160	.....	439
Lead bullion..... " "	600	1,477	7,973	14,205
" pigs and bars " "	.....	.....	.....	.....
Magnolia metal... " "	.....	.....	57	.....
Nickel..... " "	.....	5	157	10
St'l, bil'ts, rods, etc. " "	†1,945	257	2,836	6,439
Tin ..... " "	.....	675	598	4,502
Tin dross..... " "	.....	.....	28	.....
Tin and black plates, boxes.	.....	3,594	.....	202,522
Zinc dross.....long tons	.....	.....	150	.....
Zinc (spelter).....long tons	.....	†65	1,585	874

*Metal Exchange Reports. † Week ending April 15th.

Philadelphia.††	Imports. Week, April 9.	Year, 1897.
Antimony, casks	.....	2,700
Copper ore, long tons	.....	8,882
Ferro-manganese, long tons	.....	48
Ferro-silicon	.....	.....
Iron ore, long tons	10,250	75,036
" pig " "	.....	.....
" pyrites, long tons	.....	.....
" and steel scrap, long tons	.....	.....
Manganese ore, long tons	.....	12,250
Spiegeleisen " "	.....	.....
Tin ..... " "	.....	225
Tin and black plates, boxes	.....	3,961

†† From New York Metal Exchange Reports.

Average Monthly Prices of Metals.

In New York, for the years 1897 and 1896; in cents per pound.

Month.	Copper. 1897.	Copper. 1896.	Tin. 1897.	Tin. 1896.	Lead. 1897.	Lead. 1896.	Spelter. 1897.	Spelter. 1896.
Jan.	11·75	9·87	13·44	13 02	3·04	3 08	3·91	3·75
Feb.	11·92	10·64	13·59	13 44	3·28	3·19	4·02	4·03
March	11·80	11·03	13·43	13·30	3·41	3·14	4·12	4·20
April	... ..	10·98	.....	13·34	.....	3·07	.....	4·07
May.	.....	11·15	.....	13·51	.....	3·03	.....	3·98
June	.....	11·67	.....	13·59	.....	3·03	.....	4·10
July.	.....	11·40	.....	13·63	.....	2 96	.....	3·97
August	.....	10·98	.....	13·49	....	2·73	.....	3 76
Sept.	.....	10·66	.....	13·15	.....	2·77	.....	3·60
October	.....	10 66	.....	12·91	.....	2·80	.....	3·72
Nov.	.....	11·23	.....	13·09	.....	2·96	.....	3·99
Dec.	.....	11·28	.....	12·96	.....	3·04	.....	4·14
Year	.....	10·88	.....	13·29	.....	2·98	.....	3·94

Imports and Exports of Metals.

Baltimore.**	Week, April 15. Exp.	Imp.	Year, 1897. Exp.	Imp.
Bismuth metal, cases	.....	.....	.....	.....
Chrome ore..... long tons	.....	.....	.....	.....
Copper, fine..... " "	513	.....	11,010	.....
" matte..... " "	.....	.....	.....	.....
" sulphate.. " "	31	.....	1,363	.....
Iron ore..... " "	.....	7,381	.....	76,600
" pigs, bars, ingots, blooms. " "	.....	.....	80	858
Iron oxide.....bags	.....	.....	.....	.....
" pyrites.....long tons	.....	.....	.....	.....
Ferro-manganese " "	.....	.....	1,314	.....
Ferro-silicon..... " "	.....	.....	.....	48
Lead..... " "	.....	.....	120	300
Limestone.....short "	.....	.....	.....	.....
Manganese metal, long "	.....	.....	89	2,860
Spiegeleisen ..... " "	.....	.....	.....	480
Steel..... " "	513	.....	1,797	197
Steel wire, bundles.....	228		615	5,139
Tin, long tons.....	.....	.....	366	1,275
Tin and black plates, boxes	.....	698	.....	11,123
Zinc (spelter) long tons	.....	.....	2	.....

**From our special correspondent.

CHEMICALS AND MINERALS.

NEW YORK, Friday Evening, April 16.

Heavy Chemicals.—The stagnation in this market is more pronounced this week than before. The buyer refuses to take the risk of paying the additional cost made possible by the retroactive clause in the proposed tariff bill, and the seller claims to be unable to assume the responsibility. The result of this is simply to kill business. Bleaching powder, which has been very scarce on spot, still remains so.

We quote: Caustic soda, 60%, $2.10@$2.15; 70, 74@76%, $1.90@$2 per 100 lbs. Alkali, 58%, 65c. for 50-ton lots and over, and 70@80c. for smaller quantities; 48%, $1@$1.20 for jobbing lots. Caustic soda ash, 48°, $1.50@$1.70. Bleaching powder, prime brands, $1.75@$1.87½; Continental, $1.57½@$1.70 per 100 lbs. Continental F brand, $1.60@$1.65. Bicarb. soda, English, 1·75c. per lb.; American, bulk, $1.50@$3.50 per 100 lbs., according to make. Sal-soda, English, 60@65c.; American, 55@65c. (in barrels), 80c. (in kegs) per 100 lbs. Hyposulphite of soda, 1·60 @1·80c. in casks; 1·70@1·95c. in kegs. Chlorate of potash, 9¾@10c.

Acids.—Rather a quiet week is reported in the acid business, with nothing worthy of note. The advance contemplated in the price of salt, mention of which was made last week, has not yet occurred, but efforts in this direction are still being made. Quotations per 100 lbs. in New York and vicinity in lots of 50 carboys or over are as follows: Acetic acid, commercial No. 8 (in barrels), $1.40@$1.50; in carboys, $1.50@$1 65; redistilled, 28%, in bbls., $1.70@$1.80; in carboys, $1.90@$2.05; muriatic acid, 18°, 75@85c.; 20°, 85@95c.; 22°, $1.15@$1.25, according to make and quantity. Nitric acid, 36°, $3.50@$4; 40°, $4@$4.50; 42°, $4.50@$5.50. Oxalic acid, $8 ex-dock and $8.25 ex-store. Mixed acids, according to mixture. Sulphuric acid, 66°, 85c.@$1 in carload lots, 10@15c. higher for small quantities. Chamber acid, $6@$6.50 per ton at factory. Blue vitriol, $4.25@$4.50, according to grade and order.

Brimstone.—Business appears to be moving along smoothly and quietly in this line, with prices holding much the same right along. Just at present but little brimstone is in hand for current sales. For spot, quotations are $20@$20.50 per ton for best unmixed seconds, $19.75 to arrive and $19.50 for shipment. Thirds are 50@75c. less per ton.

Fertilizing Chemicals.—This market remains quiet, there being little buying. The North has been a better buyer than was anticipated, manufacturers finding it necessary to piece out by buying small lots. We quote:

Sulphate of ammonia, gas liquor, $2.17½ for shipment, and $2.20 for spot; bone, $2.10@$2.15 per 100 lbs. Dried blood, high grade Western, $1.70 per unit New York; f. o. b. Chicago, $1.42½ per unit. Azotine, $1.70 @$1.75 basis New York. Concentrated phosphate (30% available phosphoric acid), 57½c. per unit. Acid phosphate, 13%@15%, av. P_2O_5, 54@65c. per unit at sellers' works in bulk. Dissolved bone black, 17%@18% P_2O_5, 85c. per unit. Acidulated fish scrap, $10, and dried scrap $19.50@$20, f. o. b. fish factory. Tankage, high grade, $13.25@$13.50 per ton; concentrated, $1.32½ per unit, f. o. b. Chicago; New York, $18½@$19; low grade, $17½@$18. Bone tankage, $19@$20; ground bone, $21@$23. Bonemeal, $20@$22.50.

Sulphate of Potash: 90%, New York and Boston, $1.99½; Philadelphia, Baltimore and Norfolk, $2.01; Southern ports, $2.03.

Double Manure-Salt: 1·03c., basis of 48% chlorate high grade (basis 90%), 2·01½@2·05c.; in bulk, 24@36% per unit O. P., 38½@40c.

Muriate of Potash: We quote: 1·78c. at New York and Boston, 1·79½c. Philadelphia, Baltimore and Norfolk, and 1·84½c. Charleston, Savannah, Wilmington and New Orleans, for 80@85% basis of 80%, in lots of 50 tons and upward.

Kainit.—Invoice weights, as taken at port of shipment, per ton of 2,240 lbs., testing 12·4% actual potash, equivalent to 23% sulphate of potash, $8.58. Actual weights, ex-vessel at port of New York per ton of 2,240 lbs. (testing as before), $8.83.

Nitrate of Soda.—Conditions remain firm, and spot sales are still being made at the same figure as

last week. We quote: For spot, 1·95c.; to arrive, (April and May), 1·82½@1·87c.; for shipment, 1·75@ $1.77½c.

Liverpool. April 7.

(Special Report of Joseph P. Brunner & Co.)

Although there is no great amount of activity to report in heavy chemicals, the market is very firm, the late advances being well maintained.

Soda ash receives a fair amount of attention from buyers. Quotations vary according to export market, and nearest range for tierces may be called about as follows: Leblanc ash, 48%, £4 10s. @£4 15s. per ton; 58%, £4 15s.@£5 per ton, net cash. Ammonia ash, 48%, £3 5s.@£4 per ton; 58%, £3 10s.@ £4 5s. per ton, net cash. Bags 5s. per ton under price for tierces. Special terms are made for American business.

Soda crystals are in request, and firm at £2 17s. 6d. per ton, less 5% for barrels and 7s. less for bags. Special quotations are made for American orders.

Caustic soda is in fairly good demand, and unbarred makes are very difficult to get hold of, at present. We quote spot range, as to market, about as follows: 60%, £6 3s. 9d.@£6 5s. per ton; 70%, £7 3s. 9d.@£7 5s. per ton net cash; 74%, £8 2s. 6d.@£8 5s. per ton; 76%, £8 15s.@£9 5s. per ton, net cash.

Bleaching powder is in request at £6 15s.@£7 per ton, net cash, for hardwood packages, as to destination.

Chlorate of potash is inquired for, but without much business resulting, and quotations are quite nominal at about 4½d.@4¾d. per lb. for prompt delivery, while for forward delivery 4d.@ 4¼d. is about the nominal figure.

Bicarb. soda is selling freely at £6 15s. per ton, less 2½% for the finest quality in 1-cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia remains inactive and £8@ £8 2s. 6d. per ton, less 2½% is about nearest range for good gray, 24% and 25% in double bags f. o. b. here, as to quality.

Nitrate of soda is in light request, but unchanged in price at £8 5s.@£8 7s. 6d. per ton, less 2½% for double bags f. o. b. here, according to quantity and quality.

Carb. ammonia, lump, 3d. per lb.; powdered, 3¼d. per lb., less 2½%.

NOTES OF THE WEEK.

J. M. Lang & Company, Savannah, Ga., report the shipments of high-grade Florida phosphate rock made through the port of Savannah during March, 1897, to have been 8,487 short tons. Of this, 965 tons went to Italy and the remainder to Germany.

The first annual meeting of the shareholders of the Castner-Kellner Alkali Company, Limited, was held in London March 29th. The directors' report stated that the hopes expressed by the chairman at the statutory meeting in February of last year had been realized. The installation for 1,000 H. P. had been practically completed, the few finishing touches required being of such a nature as not to interfere with the operation of the plant, and a portion of the plant had been recently put into work with results, both as regards the plant and the products, which had been found satisfactory, and as anticipated. The working of the plant was now being continued, and would be extended rapidly, and in a short time the products of the first installation would be ready for the market. The buildings which had been erected covered an area of upwards 2¼ acres. The total expenditure to the date of this report on the erection of the works had been £70,000, exclusive of the cost of the freehold land consisting of about 46 acres, for which £5,500 was paid. In addition to this expenditure the directors determined last autumn to incur a further outlay on a second installation of 1,000 H. P. in consequence of the information supplied to them from one of their allied companies that the Castner-Kellner process was capable of realizing even greater results in the production of caustic potash than of caustic soda. In order to test this statement Mr. Castner was requested to produce caustic potash by means of the plan he used at Oldbury for the production of caustic soda. The results were so satisfactory that the directors felt justified in proceeding at once with the erection of a second installation. The report added that their allies, the Solvay Werke, of Germany, had been pushing forward the works, which were arranged on exactly the same plan as those of the Castner-Kellner Company, with the utmost speed, and it was expected that they would follow the latter company closely in commencing operations. The Mathieson Alkali Company, of America was also making rapid progres with the erection of the works at Niagara Falls for 2,000-H. P. plant.

MINING STOCKS.

Complete quotations will be found on pages 394 and 395 of mining stocks listed and dealt in at:

New York.	Colorado Springs.	Paris, France.
Boston.	Duluth, Minn.	Mexico.
Philadelphia.	Helena, Mont.	Shanghai, China.
Baltimore.	Salt Lake, Utah.	Valparaiso, Chile.
Pittsburg.	San Francisco.	London, England.
Cleveland.	Denver, Colo.	British Columbia.

NEW YORK, Thursday Evening, April 15.

Early in the week more animation was felt in mining stocks at the Consolidated Stock and Petroleum Exchange than for some time past, but the trading has fallen off at the close. The exchanges are closed this week on Friday and Saturday. Prices have fluctuated slightly. Comstocks were very quiet. Consolidated California & Virginia, which sold at $1.55, and Savage at 27c.—a drop of 8c. since March 24th—were the only two stocks of this group dealt in this week. Only two California stocks were traded in and these ruled steady. Standard Consolidated sold at $1.70 and Brunswick Consolidated at 8@9c., which latter stock records transactions in several thousand shares.

Horn Silver, of Utah, sold at $1.60@$1.65 this week, with dealings in 300 shares. The Colorado stocks were the most dealt in, especially the Cripple Creek group. The Leadville stock Chrysolite sold at 11c. on April 13th.

The business reported on the Mining Exchange is large in volume, but is confined principally to those "favorites" that are backed by people directly interested in the companies. The nominating committee of this Exchange has posted the regular ticket for officers for the ensuing year. This contains the following names: For president, W. C. Dornin; vice-president, Louis Ross; treasurer, C. M. Stead; directors, G. N. Lancon, C. F. Philips, John Howley, M W. Niven, J. M. Matthews, J. G. Dale, E. N. Downs, Stephen V. White, I. C. Stump, J. T. Tichenor and F. L. Underwood; for chairman, John Gray. The opposition has nominated R. A. Irving as director in place of E. N. Downs, and M. E. Wooster for secretary; otherwise it is the same as the regular ticket.

Boston. April 15.

(From Our Special Correspondent.)

With a good market last week and prices generally higher, the reverse is the case now and in almost every instance prices are lower. This state of things is not confined to the mining share market alone, but runs all through the list of stocks and bonds.

Arnold went off at first from $2⅝ to $2⅛ and later sales at $2¾. Atlantic declined from $21 to $20 with more stock offering at that. Centennial has gradually declined from $7½ until touching $6 with quite free selling. Calumet & Hecla still holds at $370, but any pressure to sell would depress the price quickly. Franklin is off from $11 to $10¼, and very little doing in it. Kearsarge on limited transactions declined from $16⅜ to $16, and is now offered at $15¾. Osceola is off from $31 to $29½, now $29 bid. Quincy dropped from $110 to $107. It will be remembered that the last instalment on the scrip was payable April 16th, and that the stock hereafter will be 100,000 shares. Tamarack is $2 off at $118.

Boston & Montana, up to $126⅜ last week, has sold off (ex-dividend $3) to $119½, closing $120 bid. There is a fairly good demand at these low figures, but the stock lacks spirited movement. Butte & Boston sold down from $17¾ to $15½, and later the price is up to $18¾. This includes the fourth and last instalment ($2.50 per share) of the $10 assessment, a net gain of $⅝ per share. There is likely to be a little contest in this stock for the control, in which case higher prices would be likely to result. Old Dominion is again lower, falling off from $15 to $13, and closes $13¾ bid. The decline is doubtless due to the fact of the mine being closed temporarily.

Gold stocks were equally dull with the rest of the market; transactions in them are quite limited. Gold Coin is $¼ off, at $5¼, and same bid. Merced steady at $8⅝@$8½, the latter the bidding price. Pioneer advanced from $5⅛ to $5⅞, closing $5 bid. The annual report is expected shortly.

In the afternoon the market still continued dull, with only four stocks dealt in. Boston & Montana hung around $120, with sales of less than 500 shares —a small number for that stock. Butte & Boston was more freely taken, and went up from $18¼ to $18⅝, closing $18⅝, with sales of over 2,000 shares. Centennial was active, but on a declining grade, from $6¾ to $6, the sales reaching about 1,200 shares.

Chicago. April 14.

(From Our Special Correspondent.)

For over a year the Chicago Mining Exchange has held out inducements in the shape of mining stocks to the Chicago public, and for more than a year the Chicago public has failed to appreciate the inducements offered by the Exchange. The Exchange without doubt has been run on strictly legitimate lines, and never has there been an institution of the kind in Chicago that started out with the backing of the present board. It has been offering to the public an opportunity to buy or sell mining stocks. It has been quoting day after day all of the best of the mines listed on the Colorado Exchanges and a number of other good investments in mines of those listed only on this Exchange, but with all its efforts, it now looks as though the Exchange would soon be a thing of the past. At a meeting of the board of directors recently it was voted that a new lease be made on the present quarters in the New York Life Building running from May 1st until September 1st, and should there be nothing to indicate any change for the better by September next the Exchange will close its doors for good. From now on there will be an earnest effort to show the Chicago public the benefits of a mining exchange. New stocks will be listed and among them will be a number of dividend-paying properties. The Exchange is financially well off, it having at the present time a surplus fund amounting to some $8,000. The officers of the Exchange will remain as before. No calls have been made o late, but another attempt will be made soon and calls will be made each morning.

Cleveland. April 14.

(From Our Special Correspondent.)

The mining stocks offered for sale in this city manifested very little activity during the past week. The investors seem to be waiting for the new season to get fairly started before they make their purchases. Jackson and Lake Superior advanced somewhat, and Minnesota is again on the market.

Salt Lake City, Utah. April 10.

(Special Report of James A. Pollock.)

The mining share market this week showed more activity than for some time past. Heavy realizing sales caused a decline in some stocks, but in the main prices held steady. While the silver situation shows no sign of an improvement, the feeling of apprehension in regard to the future price of the metal has in a measure abated and the mines will continue to work as usual. Some concessions will undoubtedly be made in the way of labor, supplies, freight and ore treatment, so that the net profits of production may not be materially lessened. On comparatively light business, Ajax strengthened materially. Anchor and Alliance were without activity. Fears that there may be no April dividend caused holders of Bullion-Beck to loosen up very heavily and the stock sold down to near the $7 mark again, but reacted somewhat to-day. Buckeye did some business at last week's figures. A slight strengthening followed the letting of the Centennial-Eureka ore contract, although the business done was not heavy. Both of the Dalys were about unchanged, with very light business done in either. Dalton is not very active and the figures changed little. Dalton & Lark was very heavily shaded, sales being made at the lowest point on record. More good official reports maintained the interest in Dexter and kept the price up. East Golden Gate has been heavily attached by creditors, all of the surface stock being tied up. There are no buyers whatever for the stock. Galena strengthened somewhat and sold above last week's figures. Mercur stock was in good demand at about last week's figures. Mammoth was subjected to another bear raid that carried the stock below last week's prices. As is always the case, however, there were plenty of buyers, the general investment public appreciating the cheapness of the stock. Northern Light recovered several points on renewed buying. Ontario was not in demand and sold very much lower. Inquiry for Rover increased. Sacramento was shaded again, the demand being very light. Sunshine was somewhat stronger on limited dealings. Very little of the stock is being offered. Neither of the Swanseas changed materially.

San Francisco. April 10.

(From Our Special Correspondent.)

The market in the early part of the week showed some activity, with a gradual improvement in prices, and some signs of a demand for stocks. This was followed by a relapse into dullness with somewhat lower prices and slight fluctuations on small transactions.

Toward the close of the week there was some revival and better prices were noted. The market, however, is in a condition where it does not take very much to get up a show of business.

Some quotations noted are: Consolidated California & Virginia, $1.60@$1.65, assessment paid; Challar, $1.15@$1.25; Ophir, $1.10@$1.15; Hale & Norcross, 91c.; Confidence, 87c.; Best & Belcher, 70@72c.; Mexican, 47@50c. A little was done in Standard Consolidated at $1.60.

The Comstock mining, milling and other corporations paid out a total of $60,415 to employees for labor during the month of March, 1897. The aggregate of the payrolls was $2,000 larger than for the previous month. The individual disbursements were as follows: Hale & Norcross (estimated), $1,300; Andes, $900; Consolidated California & Virginia, $10,904; Mexican, $1,759; Ophir, $2,195; Best & Belcher, $2,025; Gould & Curry, $1,146; Alta, $1,117; Utah, $308; Occidental (estimated), $1,500; Brunswick Exploration Company, $7,019; Crown Point, $1,469; Yellow Jacket, $1,691; Confidence, $538; Challenge, $230; Belcher, $2,622; Imperial, $180; Savage, $2,228; Bullion, $961; Challar, $4,757; Potosi, $1,246; Union shaft, $2,341; Sierra Nevada, $718; Alpha, $733; Overman (estimated), $1,000; Caledonia (estimated), $500; Nevada mill, $525; electric light (estimated), $500; water company (estimated), $3,000; quartz mills (estimated), $5,000.

Mining assessments falling delinquent in April amount to $230,598, of which Nevada mines want $206,898 and California mines $23,700.

Spokane, Wash. April 10.

(From Our Special Correspondent.)

This has been the most active week since the organization of the Stock Exchange. With 33 members operating on our Exchange, and new stocks being frequently called, business must grow in proportion as our board is recognized by the mining public. Trail Creek stocks are receiving the most attention from investors. Rossland Red Mountain advanced 7c. to 28c. this week, and reports a sale of

3,000 shares. West Le Roi sold 7,000 shares, of which 1,000 shares were at 21½c., and the remaining 6,000 at private terms. There were also sales of 8,000 shares of Poorman at 6@6⅛c., 2,000 shares of Novelty at 6¼c., 18,500 shares of Butte at 3⅝@3¼c., and 4,000 shares of Helen at 1c. In Slocan stocks Rambler Consolidated sold 5,500 shares at 51@51½c. Noble Five Consolidated was traded in a little, 100 shares being sold at 59c., an advance of 1c. The Ainsworth stock Dellie was quoted at 16c., at which price 500 shares were sold. Of the other stocks we note Arlington at 12c., with sales of 800 shares; New York, at 6c. with 10,000 shares; Reservation at 4¾@6c. with 12,734 shares, and Dardanelles at 19c. with 4,000 shares. The total sales for the week were about 234,000 shares, which is more than double the number reported last week.

The Lost Cabin Gold Mining Company elected the following officers at its first stockholders' meeting this week: President, H. N. Maguire; secretary, W. A. Cummings; treasurer, Samuel Crow; trustees, E. D. Rinear, Samuel Crow, Fred Fender, Henry Trede, H. N. Maguire, Leroy C. Waller and Charles Riddiford; superintendent, E. D. Rinear. The company is free of debt and has $448 in its treasury.

The Gold Cord Mining and Milling Company was incorporated on April 5th with a capitalization of $375,000, divided into 1,500,000 shares of 25c. each. Of this amount 400,000 shares will be treasury stock. The officers of the company are: President, J. H. Griffith; vice-president, A. W. Doland; treasurer, C. H. Weeks; secretary, C. B. Roosa; manager, J. M. Rex. The latter gentleman is the caller of the Spokane Stock Exchange. The property is located in the Methow country, adjoining the St. George and Highland Light, and is within 1,000 ft. of Methow City. A block of this company's stock will probably be placed on the market soon.

The Crystal Mining Company was also incorporated this week with a capital stock of $750,000, and has its main office in this city. The trustaes are John Gray, J. T. Lockhart, George Turner, W. M. Ridpath and E. J. Bowers.

British Columbia.

(From Our Special Correspondent.)

ROSSLAND, B. C., April 8.

On the new exchange, where there is now a morning and afternoon call of the regularly listed mining stocks, the results of systematic organization are showing themselves. The sales so far made, though not large, are likely to increase with an improved money market. The result of the listing of stocks, and the organization of the exchange so far have proved to be beneficial. The quotations now given are nearer the mark than formerly when stocks were quoted very much according to caprice or prejudice. The exchange has now become responsible for the correctness of these figures.

London.

April 3.

(From Our Special Correspondent.)

The South African section of the London mining market has as usual been dull all week and the transactions have been very restricted. It has been denied that Gold Fields contemplates either an amalgamation with Gold Fields Deep or an issue of new capital, so that the stir in this group of shares chronicled by me last week has died down. In all probability both schemes are being considered by the directors, and we may hear more of them later on. The appointment of the Transvaal Committee to inquire into the grievances of the miners has had a good effect on the market here, more especially as the men on the committee are known to be fair-minded and likely to give an unprejudiced report. A rumor has been persistently circulated that the British government has bought Delagoa Bay and a strip of land connecting with Rhodesia. This rumor caused a slight spurt, but it has so often been used before that many people entirely disregard it. Quotations in the South African section remain practically unaltered, though they fluctuate a little every day and are very sensitive to the smallest influence.

The West Australian section has been dull on the whole, though there has been some buying at stiff prices of some of the more favored shares of the Hannan's district group. The Indian section is as usual the one strong feature of the whole mining market. New Zealands and Americans are quite in the background.

A novel method of attracting prospectors to the Lake of the Woods District, in Ontario, is being pursued by the Canadian government. This is to grant the sole right to prospect on specified areas for the payment of so much a year. An important transaction of this character has just been completed with the South African General Development Syndicate, a London company, which, as we recorded some months ago, has recently abandoned South Africa as the scene of its operations and turned its attention to Canada. This syndicate has acquired the right of prospecting over 100 square miles in the Lake of the Woods District, with the right of purchase at a fixed price. They secure this right for three years on the condition that £24,000 is spent there during that period. A sum of £4,000 has been lodged as security. The work of the syndicate will be watched with interest.

The report of the New Elkhorn Mining Company for 1896 has just been published. It will be remembered that this company was formed rather more than a year ago, to take over the Elkhorn mine in Montana, which had utterly shown signs of petering out, and at the same time to purchase a new property at Leadville, Colo. The year's work at the Montana mine has been confined chiefly to prospecting, and the results have been much more satisfactory than the former manager, Mr. Molson had led shareholders to hope In fact the indications of an improvement in depth are so promising that the main shaft has been sunk and exploratory work done at lower levels. At the Leadville property very little actual work has been done, owing to the miners' strike.

A new company has been formed in London called the Quesnelle River Gold Dredging Company, Limited, to acquire and work a stretch of three miles on the Quesnelle River, situated near the mouth of the Beaver River, one-quarter of the distance down the river from the forks to the junction with Fraser River. The stretch of the river is stated to be uniformly rich in gold. Mr. E. J. Fader states that the gold contents vary from $1.70 to $17 per ton and Mr. G. C. Betts, Mr. T. Currie Gregory and Mr. W. F. Gore all confirm his opinion. The vendor of the property is Mr. Frank Spencer and the promoter is Mr. Marius Bidon, of Lyons. The capital of the company is £55,000 of which £40,000 in shares forms the purchase price, and £15,000 is to be subscribed for working capital. The directors of the company are gentlemen who have been connected with West Australian mining, though their efforts in steering mining companies in that colony have not been very successful.

Paris.

April 4.

(From Our Special Correspondent.)

The political situation is still alarming, but we are getting used to it, and attention is returning to the mining stock market. Nearly all the branches of the market show much activity with one exception. The South African gold stocks continue almost dead, and every one seems to avoid them as much as they possibly can.

The copper stocks have been largely dealt in, but are a little weaker. Some disappointment has been caused by the Tharsis Company, which has declared for 1896 dividends amounting to 8·75 fr. per share, the same as for 1895; a higher payment had been expected. Boleo has been an exception, the stock continuing to rise; it has reached the very high quotation of 1,950 fr. per share

It appears that active measures are to be taken to open up our great colony of Madagascar, and on lines very different from those pursued in Indo-China. The first step proposed is the building of a railroad from a point on the coast to Tananarivo, the capital and the chief Hova town. For this a concession is to be granted to a company, which is to receive a grant of 2,600 hectares of land per kilometer of road. This grant is to carry with it the mineral rights, in case any minerals are discovered; and we are told that the island contains deposits of iron and other ores, as well as of gold. The conditions are that the company shall, within six years, complete the road, establish a port and make a beginning of colonization on its lands. Another company is to receive a land grant for opening a road, to be followed by a railroad, from the coast to Fianarantsoa.

I have obtained fuller and more complete statements of the production of steel in France last year, of which I sent you some preliminary figures lately. The total output of ingots was in metric tons, as below:

	1895.	1896.
Bessemer	449,732	726,848
Open-hearth	376,242	401,921
Puddled	6,685	12,864
Cemented steel	1,232	1,208
Crucible steel	10,985	9,953
Scrap, reforged	4,740	7,176
Total	899,676	1,159,970

The total increase last year was therefore 260,314 tons, or 28·9%, a very marked gain. You will see that the great advance was in Bessemer steel, 227,116 tons, or 45·4%, while the increase in open-hearth was 25,679 tons, or 6·8% only; and that in crucible and other special steels was 7,499 tons, or 31·2%. The finished steel produced included 170 675 tons of rails, 501,062 tons of bars, beams and other shapes, and 211,771 tons of plates, a total of 883,508 tons.

I may add also some details as to the production of wrought iron, which reached a total of 814,643 tons, of which 589,236 tons were obtained by puddling, 6,203 tons were made in charcoal forges and 219,204 tons were forged or rolled from old iron and scrap. The charcoal forge still survives with us, though its products are decreasing and will probably soon disappear altogether. The forges are nearly all in the mountain departments of Doubs and the Pyrenees.

We do not approach the production of your great country; but we have made a very creditable showing for 1896, and for the present year we are promised a still better one.

AZOTE.

MEETINGS.

Steeple Rock Development Company, at 320 Sansome street, San Francisco, Cal., on May 11th, at 3 p. m.

Pharmacist Mining Company, at 3 and 4 Bank Building, Colorado Springs, Colo., on April 27th, at 2 p. m.

Tamarack Mining Company, annual meeting, at the Sears Building, Boston, Mass., on May 6th, at 11 a. m.

Chimborazo Mining Company, annual meeting at 105 East Bijou street, Colorado Springs, Colo., on April 21st, at 2 p. m.

Homestake Mining and Milling Company, annual meeting at Commercial Block, Salt Lake City, Utah, on May 7th, at 2 p. m.

ASSESSMENTS.

Name of Co.	Loc'n.	No.	Dinq.		Sale.		Am.
Alpha Con.	Nev.	18	Apr.	5	Apr.	27	.05
Alta Silver	"	55	"	8	"	29	.05
Anita Gold	Cal.	13	"	2	"	20	.05
Belcher Silver	Nev.	54	"	6	"	27	.25
Brunswick Con.	Cal	11	"	20	May	15	.03
Channel Bend	"	7	"	24	"	17	.02
Confidence Silver	Nev.	28	"	16	"	7	.30
Con. Cal & Va.	"	8	"	13	"	3	.25
Crown Point	"	70	"	28	"	19	.20
East Best & Belcher	"	5	"	29	"	13	.15
Eldorado Gold	Utah		"	12	"	3	.01
Emerald	"		"	15	"	4	.00½
Fish Springs			Mar.	27	Apr.	24	.04
Golden Fleece	Cal.	19	"	30	"	24	2.00
Golden State	Ida.		May	1			.00½
Goldstone	"		Apr.	22	May	13	.10
*Gray Eagle	Cal		May	8			.05
Hale & Norcross	Nev.	111	Apr.	23	May	14	.10
Henrietta	Cal.	1	"	26	"	17	.06
Home Gold	"		"	14			.05
Horseshoe Bar Con.	"	7	"	17	May	8	.10
Jamison	"	9	"	24	June	19	.05
Kentuck Con.	Nev.	13	"	13	May	5	.05
Lucky Bill	Utah	24	"	20	"	10	.01½
Mexican	Nev.	56	"	7	Apr.	29	.20
Minnie	Utah		"	6	June	7	.00½
Orleans	Cal.		"	14	May	3	.10
Potosi	Nev	47	"	14	"	5	.20
Reward Gold	Cal.	2	"	19	"	11	.03
*Seg. Belcher & Mides	Nev.	19	May	10	"	29	.05
Sevier	Utah		Apr.	3	"	19	.04
Sierra Nevada	Nev.	112	"	6	Apr.	25	.20
Snowflake	Utah		Mar.	29	"	29	.01
Sulphur Bank Q	Cal.	5	May	3	June	3	.25
Sunbeam Con.	Utah	1	Apr.	21	May	7	.00½
*Union Con.	Nev.	54	May	11	June	1	.20

*New assessment.

DIVIDENDS.

Name of Company.	Current Dividends. Date.	Am't.	Paid since Jan. 1, 1897.	Total to date.
*Aetna Con. Q			$50,000	$90,000
Alaska-Mexican			18,000	191,031
Alaska-Treadwell			75,000	3,100,000
Alice	Apr. 7	$20,000	20,000	1,015,000
Anaconda	May —	1,500,000	1,500,000	3,750,000
*Anchoria-Leland	Apr. 15	6,000	24,000	54,000
Arizona Copper			48,000	
Atlantic Copper			40,000	740,000
Bald Butte			5,000	475,000
Boston & Montana	May 20	450,000	900,000	5,825,000
*Bullion Beck			176,000	2,117,000
Calumet & Hecla	Apr. 23	500,000	2,000,000	48,850,000
*Cariboo			16,000	140,965
*Centennial Eureka			90 000	2,010,000
Charleston			10,000	150,000
Coronas			4,500	9,500
*Daly			37,500	2,925,000
Della S			10,000	60,000
*Elkton Con			65,000	231,960
*Florence	Apr. 1	3,606	14,424	128,924
Galena			5,000	71,000
Garfield-Grouse			12,000	24,000
Gold Coin			15,000	120,000
Golden Fleece			6,000	569,179
Hecla Con			30,000	2,175,000
Highland			20,000	3,244,918
*Homestake	Apr. 25	31,25	125,000	6,212,500
*Hope			20,000	672,252
*Idaho			60,000	152,000
Iowa Gold			5,000	65,000
*Isabella			56,250	258,750
Last Chance			20,000	40,000
*Le Roi	Apr. 1	25,000	125,000	375,000
*Mercur			75,000	650,000
*Merrimac			9,400	9,400
Mont. Ore Pur. Co	Apr. 15	40,000	80,000	560,000
*Morning Star	" —	12,000	48,000	498,000
Napa Con	" 1	10,000	20,000	830,000
*N. Y. & Honduras Rosario	" 20	15,660	60,000	742,500
*Ontario			45,000	13,400,000
Osceola			50,000	2,122,500
*Pennsylvania			5,150	7,725
*Portland	Apr. 15	30,000	120,000	983,000
Princess			5,000	45,000
Quincy			100,000	2,070,000
*Rambler-Cariboo			20,000	20,000
Reco			100,000	137,500
*Sacramento			15,000	22,000
*Silver King	Apr. 10	37,500	120,000	1,012,500
*Slocan Star			50,000	350,000
*South Swansea			22,500	29,950
*Standard Con			20,000	3,737,868
*Swansea			10,000	31,500
*Two Friends			20,000	20,000
Utah			2,000	175,000
*Victor			60,000	765,000
Totals		$2,680,356	$6,683,624	$121,062,432

* March dividend paid.

NOTE.—This table does not give all the dividends paid by mining companies, as it is impossible to obtain a complete list of dividends declared. Many companies are close corporations and refuse to give the information. Readers of the *Engineering and Mining Journal* will confer a favor on the publishers if they will notify the *Journal* of any errors or omissions in the above table.

STOCK QUOTATIONS.

NEW YORK.*

Name of Company.	Location.	Par val.	Apr. 10. H.	Apr. 10. L.	Apr. 12. H.	Apr. 12. L.	Apr. 13. H.	Apr. 13. L.	Apr. 14. H.	Apr. 14. L.	Apr. 15. H.	Apr. 15. L.	Apr. 16. H.	Apr. 16. L.	Sales
Alamo	Colo	1	.03½	....	....	....	....	....	....	....	....	....	....	....	100
Alice	Mont.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Anaconda	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Anchoria-Lel'd.	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Annetta	"	1	.18	....	....	....	.18¾	.18½	.19¼	.18¼	.20	.19¼	....	....	5,500
Argentum-Jun.	"	5	.26	....	....	....	....	....	....	....	....	....	....	....	300
Belcher	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Best & Belcher	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Bodie	Cal.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Breece	Colo.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Brunswick	"	1	.08	....	.08	....	.09	.08	....	....	.08	....	....	....	4,500
Chrysolite	"	5	....	....	....	....	.11	....	....	....	.12	....	....	....	500
Colombian Gold	R. of C	5	.55½	.53½	.57½	.56½	.58	.57	.59½	.58½	.63½	.63	....	....	1,800
Comst. T	Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Con. Cal. & Va	"	100	....	....	....	....	....	....	1.55	....	1.45	....	....	....	285
Con. Imperial	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Creede & C. C	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Cripple Cr. Con.	"	1	.08	....	.07¾	....	.09	....	....	....	.07	.06½	....	....	5,600
Crescent	Utah	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Crœsus	Colo	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Crown Point	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Dalton & Lark	Utah	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Deadwood	S. Dak	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Eagle	Colo.	5	....	....	....	....	....	....	01½	.01	....	....	....	....	11,000
Elkton	"	1	....	....	....	....	1.04	....	1.06	1.04	....	....	....	....	400
Fanny B	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Favorite	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Garfield Grouse	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Geyser	Utah	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Cliff	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Coin	"	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Explor	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Golden Fleece	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold San Juan	"	1	.22	....	.22	.21	.21	....	....	....	....	....	....	....	4,200
Hale & Norcross	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Homestake	S. Dak	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Horn Silver	Utah	25	....	....	1.65	1.60	....	....	....	....	1.55	....	....	....	400
Iron Silver	Colo.	20	....	....	....	....	....	....	....	....	....	....	....	....	....
Isabella	"	1	.37	36¾	....	....	....	....	....	....	....	....	....	....	500
Jack Pot	"	1	....	....	....	....	.06	....	....	....	.07	....	....	....	4,000
Japan	"	10	3.50	3.25	3.88	3.50	4.00	3.88	4.00	3.63	4.75	4.00	....	....	12,500
Jefferson	"	1	....	....	.09	....	.09	....	....	....	.08¾	.08	....	....	1,400
King & Pemb	Ont	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Lacrosse	Colo.	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Leadville Con.	"	10	....	....	....	....	....	....	....	....	....	....	....	....	....
Little Chief	"	50	....	....	....	....	....	....	....	....	....	....	....	....	....
Mercur	Utah	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Mexican	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Mollie Gibson	Colo	5	....	....	.17½	.17	.18¾	.18	.19	.18	....	....	....	....	800
Mono	Cal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Moulton	Mont	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Mt. Rosa	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
New Haven	"	1	....	....	.02½	....	....	....	....	....	.02½	.02	....	....	1,500
Old Dominion	Ariz.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Ontario	Utah	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Ophir	Nev	100	....	....	....	....	....	....	....	....	....	....	....	....	....
People's	Colo	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Pharmacist	"	1	.13	....	.13	.12	....	....	....	....	....	....	....	....	600
Phœnix Con	Ariz.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Portland	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Potosi	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Quicksilver	Cal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
" pref.	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Red Bird	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Red Mountain	"	5	....	....	....	....	....	....	....	....	26½	....	....	....	1,000
Russell	N. C.	1	.28¾	.28	.31	.29	.32	.30	32	....	32½	.32	....	....	43,000
Savage	Nev.	100	....	....	....	....	....	....	.27	....	....	....	....	....	500
Sen M & D. Co.	Colo.	10	2.08	2.07	2.15	2.10	....	....	2.30	2.20	2.30	2.24	....	....	17,700
Senator pref.	"	10	8 40	....	8.50	....	....	....	8 75	8 50	8.50	....	....	....	2,340
Sierra Nevada	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Standard Con.	Cal.	100	....	....	....	....	....	....	1 70	....	....	....	....	....	1,000
Syndicate	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Union	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Union Con	Nev.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Utah Con	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Victor	Colo.	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Work	"	1	.06½	....	....	....	.06	....	....	....	.07	.06	....	....	2,100
Yellow Jacket	Nev.	100	....	....	....	....	....	....	....	....	26	....	....	....	100

*Official quotations. Sales, Consolidated Exchange, 7,200 shares; New York Stock Exchange, 1,285 shares; New York Mining Exchange, 108,640 shares. Total, 117,025.

INDUSTRIAL, COAL AND COAL RAILROAD.*

Name of Company.	Par value.	Apr. 10. H.	Apr. 10. L.	Apr. 12. H.	Apr. 12. L.	Apr. 13. H.	Apr. 13. L.	Apr 14. H.	Apr. 14. L.	Apr. 15. H	Apr. 15. L.	Apr 16. H.	Apr 16. L.	Sales
Balt. & Ohio	100	....	....	12⅝	12¼	13	12⅝	13¼	....	13¼	13	....	....	900
Ches. & Ohio	100	16¾	....	16⅞	16¾	17⅛	16⅞	17½	17	17	....	....	....	2,920
Col.C. & I.Dev	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Col. Fuel & I.	100	18	....	17⅜	....	17⅜	17	....	....	....	....	....	....	572
Col.,H.V.&Tol	100	....	....	3¾	3¼	....	....	3⅝	3½	3¼	2⅝	....	....	260
do. pref.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Col. & H.Coal	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Del. & Hud. C	100	103¾	102⅛	103⅜	102¼	104¼	102⅛	105	103⅜	104¼	103	....	....	8,835
Del., L. & W.	50	152	....	152	150⅝	151	150	....	....	....	....	....	....	2,500
General Elec.	100	....	....	31½	30⅝	31½	30⅛	31	..	31	30⅝	....	....	6,035
Lake Erie&W	100	....	....	13½	....	13⅝	....	....	....	....	....	....	....	450
do. pref.	100	....	....	62½	....	....	....	62⅝	....	....	....	....	....	110
Morris&Essex	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Nat'l Lead	100	23¾	....	23⅝	....	23⅝	....	22¾	....	22½	....	....	....	595
do. pref.	100	91¾	....	92¼	....	91¾	....	....	....	91¾	....	....	....	300
N. J. Central	100	77¼	76½	78	76⅞	79⅛	77¼	....	....	†77⅞	76⅞	....	....	39,561
N. Y.,L.E.&W	100	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
N.Y.,Ont.&W.	100	13¾	....	13½	....	13¾	....	13⅝	....	....	....	....	....	1,000
N.Y.,Susq.&W	100	....	....	....	....	....	....	7⅜	....	....	....	....	....	200
do. pref.	100	....	....	22	....	....	....	....	....	....	....	....	....	1,150
Norfolk & W.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref.	50	....	....	....	....	24	....	....	....	23⅝	....	....	....	135
Phila. & Read.	50	20	19¾	19¼	18⅝	19⅝	17⅜	19¼	18¼	18¾	18¼	....	....	83,777
Penn. C. & I.	100	24½	24	24¼	23¼	23⅞	21⅝	23⅝	22¾	23	21⅞	....	....	19,260
do. pref.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Wheel. & L. E	100	1	....	1	⅞	⅞	....	⅞	....	⅞	....	....	....	2,220
do. pref.	100	....	....	8¾	....	8¼	8¼	....	....	2⅝	....	....	....	642

* Official quotations N. Y. Stock Exchange. †Ex-dividend. Total shares sold, 171,635.

SAN FRANCISCO, CAL.*

Name of Company.	Location.	Par. value.	Apr. 9.	Apr 10.	Apr. 12.	Apr. 13.	Apr. 14	Apr. 15.
Andes	Nev.	100	.22	.20	.23	.22	.24	.20
Belcher	"	100	.38	.39	.37	.36	.36	.35
Best & Belcher	"	100	.64	.64	.65	.69	.64	.63
Caledonia	"	100	.12	.11	.12	.12	.13	.11
Challar	"	100	1.10	1.10	1.25	1.25	1.20	1.10
Confidence	"	100	.81	.80	1.10	1.10	1.05	1.05
Con. California & Virginia	"	100	1.55	1.60	1.65	1.70	1.55	1.55
Crown Point	"	100	.16	.15	.14	.13	.12	.12
Gould & Curry	"	100	.35	.34	.35	.37	.33	.32
Hale & Norcross	"	100	.88	.90	.93	.91	.89	.86
Mexican	"	100	.45	.45	.46	.47	.46	.45
Occidental	"	100	.15	.16	.15	.16	.16	.13
Ophir	"	100	1.00	1.00	1.05	1.05	1.00	1.00
Potosi	"	100	.83	.84	.80	.67	.64	.62
Savage	"	100	.27	.27	.27	.26	.21	.20
Sierra Nevada	"	100	.49	.4	.48	.50	.50	.48
Standard	Cal.	100	....	....	....	....	....	....
Union Con.	Nev.	100	.26	.26	.26	.27	.25	.24
Yellow Jacket	"	100	.28	.27	.26	.26	.25	.24

*Official telegraphic quotations, San Francisco Stock Exchange.

BALTIMORE, MD.* Week ending Apr. 15.

Name of Company.	Location.	Par value	Bid.	Ask.	Name of Company.	Location.	Par value.	Bid.	Ask.
Balt. M. & S.	N. C.	5	....	....	Howard C.&C	Md.	5	....	....
Conrad Hill	"	10	....	....	Lake Chrome	"	5	....	....
					Ore Knob	"	10	....	....

BOSTON, MASS.*

Name of Company.	Location.	Par val.	Apr 9. H.	Apr 9. L.	Apr. 10. H.	Apr. 10. L.	Apr. 12. H.	Apr. 12. L.	Apr. 13. H.	Apr. 13. L.	Apr. 14. H.	Apr. 14. L.	Apr. 15. H.	Apr. 15. L.	Sales.
Allouez	Mich.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Anaconda	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Arnold	Mich.	25	....	....	....	....	....	....	2.63	2 50	....	....	2 75	....	150
Atlantic	"	25	....	....	20.50	....	20.50	....	20.50	20 00	21.00	....	....	....	286
Bonanza	Nev.	100	....	....	.60	....	....	....	.65	....	....	....	....	....	750
Bost. & C. C.	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Bost. & Mont.	Mont.	25	126¼	121	†	120¼	121¼	120	121¼	120	121	120	120¾	119½	7,724
Butte & Bost	"	25	17 50	16.88	16 88	16.63	16.88	15.88	16.00	15 50	16 00	15.50	18.63	17 75	12,893
Cal. & Hecla	Mich.	25	370	....	370	....	....	....	....	....	370	....	370	....	23
Centennial	"	25	....	....	7 50	7.25	7.50	7.13	7 13	6.63	7.25	6.88	7.38	6.00	4,405
Dominion Coal	N. S.	100	8.25	....	8 25	....	8 25	8 00	8.25	....	8.00	....	....	....	605
do. pref.	"	....	....	....	....	....	82.50	....	....	....	....	....	....	....	4
Franklin	Mich.	25	11.00	....	....	....	11.00	10 25	....	....	....	....	10.38	10.25	301
Gold Coin	Colo.	1	5.18	5.00	5.13	....	5.38	5.25	5 50	5.38	5 50	5.25	5 25	....	4,298
Humboldt	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Illinois Steel	Ill.	100	33.00	....	....	....	....	....	....	....	....	....	....	....	53
Kearsarge	Mich.	25	16.38	16.25	16.25	16.13	....	....	16.00	....	....	....	....	....	186
Lake Sup. Iron.	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Merced	Cal.	15	9 00	....	8.50	....	8.50	8 38	....	....	8.50	....	....	....	305
Napa	Cal.	7	....	....	....	....	....	....	....	....	....	....	....	....	....
National	Mich.	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Old Dominion	Ariz	2	15.00	....	....	....	14.50	....	14.00	13 63	14.00	13.25	....	....	1,079
Osceola	Mich.	25	31.00	31.50	....	....	33.75	30 00	30.00	....	29.50	....	30.00	29 50	447
Pioneer	Cal.	10	5 63	5 13	6.00	5.63	5.75	5.38	5.50	5 25	5.50	5.38	5.50	5.25	3,365
Quincy	Mich.	25	110	109¾	....	....	....	....	110	109¾	....	....	109	107	207
do. scrip	"	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ridge Mining	"	....	....	....	....	....	....	....	....	....	....	....	....	....	....
San. Ysabel (G.)	Cal.	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Tamarack	Mich.	25	119½	....	118	....	118½	....	....	....	118	....	118	....	46
Tamarack, Jr.	"	25	16 00	....	....	....	16 00	....	....	....	16.00	....	16.20	....	45
Tecumseh	"	25	....	....	....	....	....	....	....	....	....	....	....	....	....
Westingh.E.&M	Pa.	50	....	....	....	....	....	....	....	....	....	....	....	....	....
do. pref.	"	50	51.00	....	....	....	51 00	....	....	....	50.25	....	....	....	15
Wolverine	Mich.	25	9 25	....	9.00	....	9.00	....	9 25	....	9 00	....	9.00	....	655

*Official quotations Boston Stock Exchange. † 121¼ Ex-dividend. Total sales, 37,842.

COLORADO SPRINGS, COLO.

Name of Company.	Par val	Apr. 5. H.	Apr. 5. L.	Apr. 6. H.	Apr. 6. L.	Apr. 7. H.	Apr. 7. L.	Apr. 8 H.	Apr. 8 L.	Apr. 9 H.	Apr. 9 L.	Apr. 10. H.	Apr. 10. L.	Sales.
Ajax	$1	....	....	....	....	....	....	....	....	....	....	....	....	....
Alamo	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Am'ric'n C	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Anaconda	5	.53½	....	.53½	....	53½	....	53½	.53	.53½	.52¾	.52	.51	21,050
Aola	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Arg'ntumJ	2	....	....	.26	....	.24½	....	24⅜	....	23	.20	.21	....	3,000
Bangkok	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Bankers	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Banner	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Ben Hur	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Blue Bell	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Bob Lee	1	....	....	....	....	....	....	....	....	....	....	.004	....	5,000
Bost. & C.C.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Buckhorn	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Colo.C.&M.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Columbine	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Copper M	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Cr. & C. C.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
C. C. Con.	1	.08½	.08⅜	.08	....	.08¼	....	.08	.07⅞	....	....	....	....	8,000
Cr.Cr.Exp.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Crœsus	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Des Moines	1	....	....	....	....	....	....	.01¾	....	....	....	....	....	1,000
Elkton	1	1 19	....	1.20	1.17¼	1 17½	1.14	1.14	1 11⅜	1.12⅝	1.07	1.09½	1.06½	42,350
Enterprise	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Fanny R.	1	....	....	....	....	....	....	....	....	.03⅝	.08¼	....	....	5,000
Favorite	1	....	....	....	....	....	....	....	....	....	....	.04	.03¾	6,000
Franklin	1	....	....	.05	....	....	....	....	....	....	....	....	....	6,000
Garfield-G.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold. Age	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold. E'g'e	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Fl'ce.	1	.30	....	.30	....	.30	....	....	....	....	....	....	....	700
Gold & Gl.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold King	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold Stand	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gould	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Grotte	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Henrietta	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Humboldt	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Ida May	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Ingham,C.	⅓	....	....	....	....	....	....	.12	.10	....	....	.10	....	4,000
Iron Clad	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Isabella	1	.41½	.41	.41½	41	.41	.40⅜	.40⅝	.39⅝	.39½	.37¼	.37	.33⅜	81,100
do.stamp.	1	40⅝	....	....	....	....	.33½	....	....	.37	....	.33¼	.32½	4,000
Jack Pot	1	.07¼	.07⅛	.07	....	.07	.06⅝	.06	....	.05⅝	.05⅝	.05⅝	....	49,000
Jefferson	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Keystone	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Ladessa	1	....	....	....	....	....	....	....	....	....	....	....	....	....
L'nc'ln B'y	1	....	....	....	....	....	....	....	....	....	....	....	....	....
LottieGib	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Marion	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Matoa	1	....	....	.10	....	....	....	....	....	.08	....	.08	....	9,000
Mollie G.	5	....	....	....	....	.23	.22	.21	.20	.19¾	....	.19¾	.19	5,600
Monarch	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Mt. Rosa	1	....	....	.09	....	.09	....	.09	....	....	....	....	....	2,500
Mutual	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Nugget	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Ophir	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Oriole	1	....	....	....	....	....	....	.01¾	....	....	....	.01¼	....	2,000
Orphan B.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Pappoose	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Pharmacist	1	.14½	....	.13¾	....	.14	.13¾	.13¾	.13¾	.13⅜	.13¾	.12½	.12⅝	32,700
Pilgrim C	1	....	....	....	....	....	....	....	....	....	....	.01	....	4,000
Portland	1	.75	.78	.70	.68	.68	.60	.62	.60	.60	....	.60	....	7,800
Reno	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Sacrameto	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Silver St.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Specimen	1	.04½	.04⅛	....	....	....	....	....	....	.04¾	....	....	....	4,000
Sq'w Mt.T.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Temonj	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Trachyte	1	.01⅞	....	.01¾	....	.01⅞	.01⅝	....	....	....	....	....	....	10,000
Union	1	.15⅝	....	15	.14¾	.15	14¾	.13¾	.12¼	.12	.11	.11¼	.10¼	57,700
Virginia M.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Work	1	.07	....	.06¾	....	....	....	.06¾	....	.06⅝	.06½	....	....	16,0 0

Official quotations. Total shares sold, listed, 392,00; unlisted, 669,000.

CLEVELAND.

Name of Company.	Par value.	Apr. 14. Bid.	Apr. 14. Ask.	Name of Company.	Par value.	Apr. 14. Bid.	Apr. 14. Ask.
Aurora	$25	....	$4	Lake Superior	$25	....	$30
Chandler	25	$35	40	Minnesota	100	$45	55
Cleveland-Cliffs Iron	100	....	25	Pittsburg & L'ke Angeline	25	70	....
Jackson	25	....	75	Republic	25	10	12

BRITISH COLUMBIA. Week ending April 8.

Name.	Selling price.	Name	Selling price.	Name.	Selling price.
Bound'y Creek:		**Trail C'k** (con.):		**Trail C'k** (con.):	
Old Iron Sides	.....	Br. Col. G. King	$0 09	Monita	$0.18
C'p McKenney:		Caledonia	.10	Morning Star	.08
Cariboo M.& S.Co.	.....	Celtic Queen	.13	Northern Bell	.12½
Ainsworth & Nelson Dis.:		Commander	.22	Novelty	.09
Dellie M. & M. Co	.....	Crown Point	.40	O. K	.25
Colville Res.:		Dardanelles	.12	Palo Alto	.05¾
Burton	.....	Deer Park	.18	Phœnix	.10
Fidelity G.& C.Co	.....	Ellen	.07½	Rambler	.51¼
Joe T. Gold M. Co	.....	Erie	.05½	Red Eagle Lee	.10
Mountain View	.....	Freeburn	.12	Red Mt View	.05
Idaho District:		Gertrude	.03	Red Point	.10
Daisy Group	.....	Giant	.15	Red Top Mountain	.16½
Oro Pinar Placer	.....	Great Western	.17	Rochester	.10
Slocan Dis.:		Helen	.03	Scar	.15
Idler	.....	High Ore	.04¼	Rossland	.18
Noble Five Con	.....	Homestake	.10	St. Elmo	.07
Rambler Con	.....	Imperial	.05	Silverine	.06
Slocan Star	.....	Ivanhoe	.10	Silver Bell	.....
Wonderful Group	.....	Josie	.08	So.

LONDON.

April 2

NAME OF COMPANY.	Country	Product.	Authorized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers.
N'th Americans:				£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska-Mexican	Alaska	Gold	£200,000	1 0 0	0 4.8	Jan., 1897	1 2 6	1 7 6
Alaska-Treadwell	"	"	1,000,000	5 0 0	1 6	" "	4 15 0	5 0 0
De Lamar	Idaho	Gold & silver	400,000	1 0 0	1 0	Nov., 1896	6 6	7 6
Hall Mines	BritishCol	Cop.&Silver	250,000	1 0 0			1 2 6	1 5 0
Montana	Montana	Gold&silver	660,000	1 0 0	0 8	June, 1896	2 6	3 6
Palmarejo	Mexico	" "	800,000	1 0 0			9	1 3
Pinos Altos	"	" "	100,000	1 0 0			1 3	3 9
Plumas-Eureka	California	Gold	281,250	2 0 0	0 6	Oct., 1896	2 6	5 0
Richmond	Nevada	G'ld,sil.,le'd	270,000	5 0 0	1 0	Dec., "	8 9	11 3
Sierra Buttes	California	Gold	245,000	2 0 0	0 6	Apr., "	2 6	5 0
Springdale	Colorado	"	200,000	4 0	0 2	Sept.,1894	3	6
S'th Americans:								
Colomb. Hydra'lic	Colombia	Gold	75,000	1 0 0	1 0	July, 1895	6 3	8 9
Frontino & Bolivia	"	"	140,000	1 0 0	2 0	Mar., 1897	1 5 0	1 10 0
St. John del Rey	Brazil	"	562,000	1 0 0	xn	Jan., 1895	15 0	17 6
Copper:								
‡ Anaconda	Montana	Cop. & Sil.	6,000,000	5 0 0	5 1¾	Nov., 1896	5 16 3	5 18 9
Cape Copper	So. Africa	Copper	600,000	2 0 0	3 0	Dec. "	2 5 0	2 10 0
Copiapo	Chile	"	300,000	2 0 0	1 6	" "	1 17 6	2 2 6
Mason & Barry	Portugal	Cop.& sulph	1,050,000	4 0 0	£1 cp	Dec. "	2 12 6	2 17 6
Rio Tinto	Spain	Copper	3,250,000	10 0 0	18 0	Nov., "	25 2 6	25 7 6
Tharsis	"	"	625,000	2 0 0	7 0	April, "	5 17 6	6 2 6
Australians:								
Bayley's United	W.Au't'lia	Gold	600,000	5 0	0 4	Dec., 1894	2 3	2 9
‡ Broken Hill Prop.	N.S. Wales	Silver	384,000	8 0	1 0	Feb., 1897	2 8 9	2 11 3
‡ Mt. Morgan Gold	Qu'nsland	Gold	1,000,000	1 0 0	0 6	Mar., "	3 10 0	3 15 0
South Africans:								
British S.Africa Co	So. Africa	Lands & Ex.	500,000	1 0 0	xn	Jan., 1897	2 1 3	2 3 9
City & Suburban	Transvaal	Gold	1 360,000	4 0 0	2 0	" "	3 6 3	3 8 9
‡ Crown Reef	"	"	120,000	1 0 0	12 0	Oct., 1896	13 0 0	13 5 0
De Beers	CapeCol'y	Diamonds	3,950,000	5 0 0	£1	Jan., 1897	26 13 9	26 16 3
Ferreira	Transvaal	Gold	90,000	1 0 0	3 0	" "	16 0 0	16 10 0
‡ Geldenhuis Est	"	"	200,000	1 0 0	2 6	Oct., 1896	2 5 0	2 15 0
Henry Nourse	Witw'sr'd	"	125,000	1 0 0	6 0	Jan , 1897	5 2 6	5 7 6
‡ Heriots (New)	"	"	115,000	1 0 0	4 0	" "	7 0 0	7 5 0
‡ Jagersfontein	Orange F.S	Diamonds	1,000,000	5 0 0	6 0	Sept., 1896	8 12 6	8 17 6
Langlaagte Estate	Transvaal	Gold	500,000	1 0 0	3 0	Jan. 1897	3 10 0	3 15 0
Primrose (New)	"	"	300,000	1 0 0	xrts.	Sept.,1896	2 17 6	3 2 6
Robinson	"	"	2,750,000	5 0 0	5 0	Jan., 1897	7 0 0	7 5 0
‡ Sheba	"	"	850,000	1 0 0	1 0	Mar., "	1 15 0	1 16 3
Sim. & Jack (New)	"	"	5,000,000	5 0 0			2 7 6	2 12 6
Wemmer	Witw'sr'd	"	89,000	1 0 0	15 0	Jan., 1897	6 2 6	6 7 6

‡ Dividend pending.

PARIS.

Week ending April 2.

NAME OF COMPANY.	Country.	Product.	Capital Stock.	Par value.	Divs. last year.	Prices. Op'ning.	Prices. Closing
			Francs.	Fr.	Fr.	Fr.	Fr.
Acieries de Creusot	France	Steel mfrs.	27,000,000	2,000	80.00	2,010.00	2,0 0.00
" " Firminy	"	" "	3,000,000	500	85.00	1,800.00	1,79.00
" " Fives-Lille	"	" "	12,000,000	500	85.00	815.00	816.00
" " la Marine	"	" "	20.000,000	500	37.50	1,972.00	1,967.50
" " Longwy	"	" "		500	35.00	880.00	882.00
Aguas Tenidas	Spain	Iron pyrites	10,000,000	500	25.00	105.00	110.50
Anzin	France	Coal			170.00	4,840.00	4,849.00
Bolco	Lower Cal	Copper		500	65.00	1,895.00	1,950.00
Brianak	Russia	Coal & Iron				1,330.00	1,281.50
Bruay	France	Coal	3,000,000	400	700.00	25,900.00	26,280.00
Callao	Venezuela	Gold	32,200,000	125		5.00	4 50
Cape Copper	S. Africa	Copper		50	1.50	60.00	60.00
Champ d'Or	"	Gold		25		26 25	24.00
Courrieres	France	Coal	600,000	300	160.00	1,600.00	1,616.00
De Beers Consolidated	S. Africa	Diamonds	98,750,000	125	15.63	702.00	69 50
Dombrowa	Russia	Coal		500		590.00	600.00
Dynamite Centrale	France	Explosives		500	12.50	487.00	490.00
Fraser River	Brit. Col'mb	Gold				45.50	45.00
Huanchaca	Bolivia	Silver		125	5.00	55.00	57.00
Huta-Bankowa	Russia	Iron & steel				3,3 0.00	3,290.00
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	99.00	97.00
Laurium	Greece	Zinc & lead	16,300,000	500	40.00	650.00	640.00
Lautaro	Chile	Nitrates		125		144.00	140.00
Malfidano	Italy	Zinc	12,500,000	500	40 00	1,040.00	1,030.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,000	500	12.00	625.00	63 .00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	75 .00	750.00
Nickel	N.Caled'nia	Nickel	12,720,000	500	30.00	215.00	205.50
Pacchn-Jazpampa	Chile	Nitrates				25.00	25.00
Penarroya	Spain	Coal, etc		500	65.00	1,675.0	1,737.50
Rebecca	Colo'do, U.S.	Gold				9.25	8.50
Rio Tinto	Spain	Copper	81,250,000	250	27.65	670.00	668.00
Robinson	S. Africa	Gold		125	12.50	192.00	193.00
Saint Elie	Fr. Guiana	"	4,000,000	25		33.00	33.00
Salines de l'Est	France	Salt		500	20.00	300.00	285.00
Sels Gem.de la Rus. Mer	Russia	" etc				599.00	599.00
Tharsis	Spain	Copper		50	8.75	172.50	165 50
Vielle Montagne	Belgium	Zinc	9,000,000	80	20.00	530.00	532.50

MEXICO.

Week ending April 1.

NAME OF COMPANY.	State.	No. of shares.	Last dividend.	Last assessment.	Prices. Opening.	Prices. Closing.
Amistad y Concordia	Hidalgo	9,600	$0.7		$30	$28
Angustias	Guanajuato	2,400	10.00		620	560
Arevalo y Anexas	Hidalgo		10.00		300	360
Asturiana y Anexas	Zacatecas	2,500	10.00		210	220
Bartolome de Medina	Hidalgo	2,000	3.50		85	100
Carmen	"	1,100	7.75		350	400
Castellana y San Ram	Tepic	2,448	3.00		100	80
Cerro Colorado	Chihuahua	15,000		$1.00	10	10
Cinco Senores y An	Guanajuato	2,000	25.00		830	780
Concepcion y Anexas	S. Luis Potosi	2,700			180	100
El Oro	Guanajuato	500			40	60
Guadalupe	"	10,000	2.00		300	180
Luz de Maravillas	Hidalgo	1,100			200	160
Pabellon	"	1,000	27.89		300	183
Purisima de los Com.	Zacatecas	2,400			10	5
Real del Monte	Hidalgo	2,554	10.00		1,000	900
Rosario y Anexas	Durango	4,800			60	50
San Francisco	Hidalgo	2,000	3.00		290	300
S. Ped. Chalchihuites	"	1,000	2.00		100	80
San Rafael y Anexas	"	1,200	20.00		930	900
do. free stock	"	1,200	14.00		430	400
Sta. Maria de la Paz	S. Luis Potosi	2,400			570	570
Soledad	Hidalgo	960	7.50		440	430
Sorpresa	"	960	5.00		300	250
Trinidad	Guanajuato	2,000			60	50
Tlauzingo	Puebla	2,400			40	30
Union	Hidalgo	2,000	8.00		300	350
Zaragoza	"	1,100			15	15
Zomelahuacan (gold	Vera Cruz	5,000			100	100
Zona Min. de Pozos	Guanajuato	2,400		1.50	20	15

NOTE.—In most Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Prices are in Mexican dollars.

VALPARAISO, CHILE.*

Feb. 27.

NAME OF COMPANY.	Capital.	Share value Nominal	Share value Paid up.	Last Dividend.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat	$3,300,000	$100	$100	1 per cent.	$29	$30	$30
Caracoles	315,000	100	100	5 "			
Descub. de Huantajaya	1,000,000	100	100	3 "			
Huanchaca de Bolivia	8,000,000	25	25	4 "	37½	38	37½
Oruro	800,000	200	200		320	325	325
S. Agustin de Huantajaya	1,500,000	100	100	2½ per cent.			
Todos Santos	2,000,000	100	100	1 "	15	16	16
Nitrate Cos:							
Agua Santa	3,000,000	50	50	7 "	150	151	151
Antofagasta	2,000,000	200	200	5 "	152½	153	152
Union	3,000,000	200	500		43	45	45

* Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

SHANGHAI, CHINA.*

Mar. 5.

NAME OF COMPANY.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad	China	45,000	$5	$5	Oct., 1894	$0.25	Taels 1.61
Punjom Mg. Co., Ltd.	"	60,000	4	3.75			" 7.23
do. pref	"	30,000	1	1			" 2.26
RaubA'lian G.Mg. Co.	"	200,000	21	13s. 10d.	Dec., 1893	0.21	" 8.08
Sheridan Con.Mg. Co.	Colorado, U.S	20,000	Taels 100	Taels 100			" 3.00

* Special Report of J. P. Bissett & Co. The prices quoted are in Shanghai taels.

DENVER, COLO.*

NAME OF COMPANY.	Par val.	Apr 5. B.	Apr 5. A.	Apr. 6. B.	Apr. 6. A	Apr. 7. B	Apr. 7. A.	Apr. 8 B.	Apr 8 A	Apr. 9. B.	Apr. 9. A.	Apr 0 B.	Apr 0 A.	Sales
L'd Mines														
Anaconda	$5	.52¾	.54	.53	.54	.52	.53¾	.53	.53¾	.52	.53	.45	.50¼	13,800
Arg. J	1	.26¾	.28¼	.25½	.26¼	.24	.26	.24¼	.25¾	.23½	.24	.21½	.22¾	1,500
Bankers	1	.06¾	.07½	.06¾	.08	.06	.08	.06	.07½	.06¾	.06¼	.03¾	.06¾	1,000
Garf. Gr	1													
Gold. Fleece	1	.26¼	.28	.27		.26	.29¼	.26	.30	.26		.27½	.29	1,600
Gold Stand.	1	.04¾	.05	.01½	.05¼	.04¼	.04¾	.04	.05	.03¼		.03¾	.04	1,000
Insley	1	.005	.05¼	.004¾	.00¾	.0 4¾	.05¾	.0045	.005	.0048	.005	.0 4¾	.0054	3,000
Iron Clad	1	.06	.6¾	.06	.06¾	.05¾	.6¼	.06¾	.06¾	.05¾	.05¾	.05¾	.06¾	16,000
Isabella	1	.40¾	.41	.40¾	.41¾	.40¼	.40¾	.39¾	.40	.37¼	.38	.33¾	.35¾	19,300
Mollie Gib	5													
Mt. Rosa	1													
New Zeal	1	.04¾	.05	.04¾	.05	.04¾	.05	.14¾	.04¾	.15	.05¼	.04½	.05	25,000
Pharmacist	1	.14	.14¾	.13	.14¼	.3	.14¾	.12	.14			.11½		2r.
L.l-t. Pr.														
Addie C	1	.004	.008			.005	.005¾							10,000
Agate	1	.001	.002	.001	.001¾			.001	.0 1¾	.001	.001¾	.001½	.001¾	1,000
Aola	1	.01¾	.016	.01¾	.01¾	.01¾	.1 1¾	.01¾	.01¾	.01¾	.01¾	.01	.01¾	2,000
Blue Jay	1	.0 1	.001¾	.001	.001¾	.001	.001¾	.00¾	.001			.00¾	.0 1	5,000
Cannon Ball	1	.005	.0 5¼	.005	.0 5¼	.004¾	.005	.001¾	.005	.004¾	.005			12,000
C. C. Imp	1	.00	.00 1¾	.0 1	.001¾			.0 1	.00 1¾	.001¾	.0 1¾	.001¼	.001¾	65,000
Defender	1			.004	.005	.004¾	.0 6¾	.004	.004¾	.0 3¾	.004¾			5,000
Dictator	1	.001¾	.001¾	.001¾	.002	.001¾	.001¾	.001¼	.0 0¾	.001¼	.0 1¾	.001	.001¾	31,000
Gene Field	1			.001	.0 2	.001	.002							5,000
Geo. Wash	1	.00¾	.001	.00¾	.003¼	.002¾	.0 3	.002¼	.003¼			.002	.003	10,000
Gold Queen	1			.00¾	.0 1			.0 ¾	.0 1	.00¾	.001			1,000
Gold. Hope	1													
Gregory	1	.002	.002¼	.002¼	.002¾	.002	.0 2¾	.002	.002¾	.002	.002¾	.0018	.002¾	67,000
" Leas	1					.0 9¾	.0 12¾	.009	.015		.011	.011	.011¾	28,000
Hecla	1	.001¾	.001¾			.0 1¾				.001				65,000
Henrietta	1	.003¾	.0 4	.004	.007	.004	.006							5,000
Illinois	1	.007	.007¾	.0 6¾	.0 7¾	.006¾	.0 6¾	.005¾	.0 6	.005¾	.005¾	.005	.005¾	40,000
Internat'l	1	.0 1	.001¾	.001	.001¾	.001	.001¾		.001¾				.001¾	13,000
Justine	1	.002	.002¾					.002	.0 2¾			.002	.0 2¾	1,000
Old Gregory	1													
Orient	1	.00¾	.001		.0¾					.00¾	.001			1,000
Puritan	1	.002	.002¾	.002	.0 2¾	.001¾	.002			.002	.002¾	.001	.002	5,000
Q'n Victoria	1													
Reno	1													
Royal Age	1	.003¾	.004	.003¾	.004	.003	.003¾	.003¼	.003¾	.003¾	.003¾		.003¾	53,000
Senator	1	.0 1	.00 ½	.001	.001½	.001	.001¾	.001	.001¾		.001			14,000
Sentinel	1	.001¾	.002¼	.002	.0 2¼	.001¾	.00 ¾	.001¾		.00 ¾	.002	.001¾	.001¾	61,000
Three H's	1	.002	.0 2¾	.001¾	.002¾	.002	.0 2¾	.0 1¾	.003	.003¾	.0 2	.001¾	.002	10,000
Unity	1													
W. Gr. Con.	1													
Unl. Act.														
Ætna	1	.004	.004¾	.004	.005	.004	.004¾	.003¾	.0 4	.003¾	0 4	.003	.003¾	6,000
Alamo	1													
Climb'razo	1													
Bob Lee	1	.0 3¾			.0 6½	.006	.008	.0048	.0068	.005	.0058			4,000
Bost. & C.C	1			.005										4,000
Buckhorn	1	.01¾	.02¼				.0 2¼					.01½	.03¾	2,000
C. C. & M	1	.02¼	.02¾	.02	.02¾	.02¼	.02¾	.02¼	.03	.02	.02¼			2,000
Cr. & C. C	1													
C K. & N.	1	.007¾	.07¾	.006¾	.007½	.006¼	.007¾			.003¾	.007			12,000
Go d Stone	1			.003½								.002	.003	2,000
Jack Pot	1	.06¾	.07¾	.06¾	.07¼	.06¼	.07	.05	.06	.04¾	.05¾	.05¾	.06	3,000
Raffirs	1			.0 5										10,000
Kimberly	1	.0 ¾	.0 3¾	.01¾	.02	.01¾	.02			.01¾	.01¾	.01¾	.01¾	9,000
Old Gold	1	.004¾	.005	.0 5	.005½	.0 4¾	.005	.0 4	.004¾	.004¼	.004¾	.004	.004¾	23,000
Pl'g Im	1	.0 4¾	.005	.004				.001	.0 4¾					1,000
Portland	1	.74¾	.75	.72½	.75	.63	.65	.59	.59¾			.60	.63	3,600
Santa Fe	1	.001		.001	.001¾	.001	.001¾	.0 3¾	.00 ¾	.00¾	.001	.005¾	.001¾	4,000
Squaw Mt.	1									.02¼	.0 2¼	.02	.02¾	10,000
Tamarack	1	.02¾	.02¾	.02¼		.02¼	.02¾	.02¼	.02¾	.02¾	.0 3¾	.02¾	.02¾	21,000
Union Gold	1	.12¾	.15¾	.14¾	.16	.14¼	.1 5¾	.13¾	.14	.11¾	.12	.10¾	.11	2,500
Va. M	1	.06	.6¼	.05¾	.06¼	.05¾	.06	.05	.05¼	.04¾	.04¾	.04¾	.05¾	84,000

* Official quotations Colorado Mining Stock Exchange.
Shares sold, listed, 624,600; unlisted, 191,100. Total, 815,700.

SALT LAKE CITY, UTAH.*

Week ending Apr. 10.

STOCKS.†	Par value.	Bid.	Asked.	Actual selling price.	STOCKS †	Par value	Bid.	Asked.	Actual selling price.
Ajax	$10	$0.67	$0.70	$0.68	Horn Silver	$25	$1.53	$2.00	
Alliance	1		.35		Little Pittsburg	5	.03½	.03¾	$0.03½
Am. Nat. Gas		.01¾	.02	.02	Lucky Bill	10	.15	.18	.17½
Anchor	20	1.00	1 25	1.25	Malvern	2½	.20	.25	
Annie	1		.10		Mammoth	25	1.52½	1.55	1.55
Bogan	1	.03¼	.05		§Mercur	25	7.25	7 40	7.30
Brick Con		.46	.60		Morgan	125	.18	.20	.20
Bullion Beck & C.	10	7.25	7.75	7.50	Northern Light	5	.79	.80	.80
Buckeye		13½	.14	.14	Ontario	100	8 00	8.50	8 25
Centen'l Eureka	50	48.00	52.50	50.00	Overland	5	.30	.45	
Dalton	5	.02¾	.02¾	.02¾	Rover	10	.40	.50	.45
Dalton & Lark	1	.10	.12¾	.12¾	§Silver King	20	15.50	16.75	16.50
Daly	20	4.60	4.75	4.70	Sioux Con	10	.80	1.00	
Daly West	20	7.75	7.85	7.85	Sunshine	10	.28	.35	.30
Dexter		1.75	1.85	1.80	Swansea	5	2.10	2.25	2.40
Eagle	10	.03½	.04½	.04	So. Swansea	1	1.65	1.75	1.70
Four Aces	1	.10¾	.12	.11¾	Tetro	1	.04	.05	.04¾
Galena	10	1.00	1.05	1.02¾	Utah	10	1.02½	1.07½	1.05
Geyser-Marion	5	1.35	1.40	1.37½	Utah Con	1	.40	.50	
Herschel	5	.05	.10						

* Special Report of James A. Pollock. †All the companies are located in Utah. §Ex-dividend.

PHILADELPHIA, PA.*

NAME OF COMPANY.	L'cation.	Par Val'e	Apr. 8. H.	Apr. 8. L.	Apr. 9. H.	Apr. 9. L.	Apr. 10. H.	Apr. 10. L.	Apr. 12. H.	Apr. 12. L.	Apr. 13. H.	Apr. 13. L.	Apr. 14 H.	Apr. 14 L.	Sales
Cambria Iron	Pa.		37.50		37 50		37.50	37.00	37.00	36.00	32.00	30.13	32.00		338
Choc.&Glf.Ctfs	I.T.	50	7.13		7.50		7.25				7.00	6.88	7.00		1,035
Hunt & Br.Top	Pa.	50	17.25	17.00											19
" " pref	"	50									49.75				1
Lehigh C. & N.	"	50	39 00	38.50	39 00	38.50									15
Lehigh Valley	"	50	23 75	23.50	24.00	23.50	23 88	23 63	23.50	23 38	24.50	24.38	24.63	24.00	3,247
Li'leschuylkill	"	50	53 00				53.00								35
Penna. R. R.	"	50			52.88	52 75	52.88	52.75	52.88	52 63	52.88	52.75	53.00	52.75	1,729
Pa Salt Mfg. Co.	"	50													
Penna. Steel	"														
UnitedGas Im	Can.		71.50						71.50	71.00	71.25	71.0	71.50		113
Welsb. of Can	Pa.		1 50		1.50		1.50						1.50		237
Welsb Com'l	"		16.00												20
" Com pr	"				60.00		60.00								25
" Light	"		40 00	39.50	39.75	39.50			40 00		41.00	40.0	41.00		234
West Coal	"		49.50												20

* Official quotations Philadelphia Stock Exchange. Total sales, 7,068.

HELENA MONT.*

Week ending April 9.

NAME OF COMPANY.	Location.	Company's office.	Par value.	Bid.	Asked.	Shares sold.	Price.
Am.Dev.&M.Co.	Mont. & Idaho	Butte, Mont.	$1	$1.00	$1.25	500	$1.00
Bald Butte	L. & Cl'ke Co.	Helena "	1	1 00	2 00		
Bi-Metallic	Granite "	St. Louis, Mo.	5	2.00	2.50		
Combination	" "	" "	10				
Granite Mt	" "	" "		.25	.35		
Helena & Frisco		Helena, Mont.	5	7.25	7.75	500	7.25
High Ore	Jefferson "	Butte "					
Iron Mountain	Missoula "	Helena "	10	.35	.40	1,000	
Judge	Meagher "	" "		.08	.10	1,000	.09
Merrill (Gold)	Jefferson "	Butte "					
Ontario	DeerLodge "	Helena "	1				
Yellowstone	Meagher "	" "	5	12½	15	1,000	.13½

* Special Report of Samuel K. Davis. Total shares sold, 4,000.

PITTSBURG, PA.*

Week ending April 14.

NAME OF COMPANY.	Location.	Par val	Bid.	Ask.	Selling price.	NAME OF COMPANY.	Location.	Par val	Bid.	Ask.	Selling price.
COAL:						NAT. GAS:					
Mansfield	Pa.	50				Allegheny	Pa.	100			
N.Y. & C. Gas C.	"	50				Chartiers Val	"	100	9½	10	
MINING:						Manufacturers	"	100			
Ent'prise	Colo.	5				Peoples' Nat. Gas	"	50			
Lustre	Mex.	10				Peoples' Pipeage	"	25	14¾	15¾	
Silverton	Colo.	10				Pennsylvania	"	50			
MISCELLANEOUS:						Philadelphia	"	50	18	18½	
Carborundum	Pa.	100				Wheeling	W.V.	50			

* Official quotations Pittsburg Stock Exchange.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.	Dividends. Total Paid.	Dividends. Date and Amount of Last.
1	Adams, s. l. c.	Colo..	$1,500,000	150,000	$10	*	.....	$693,500	Oct.. 1895 .04
2	Ætna Cons., q.	Cal ..	500,000	100,000	5	*	.....	90,000	Mar.. 1897 .10
3	Alaska-Mexican, g.	Alask	1,000,000	200,000	5	.....	.....	191,031	Jan .. 1897 .10
4	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*	.....	3,100,000	Jan .. 1897 .37½
5	Anaconda Copper.	Mont.	30,000,000	1,200,000	25	.....	.....	2,250,000	Nov.. 1896 1.25
6	Anchoria-Leland, g.	Colo..	600,000	600,000	1	*	.....	48,000	Mar.. 1897 .01
7	Argentum Juniata, g.s.l	Colo..	2,600,000	1,300,000	2	*	.....	39,000	July.. 1895 .03
8	Aspen Mg. & S., s. l.	Colo..	2,000,000	200,000	10	*	.....	900,000	July.. 1894 .10
9	Atlantic, c.	Mich.	1,000,000	40,000	25	.....	.....	740,000	Feb.. 1897 1.00
10	Aurora, l.	Mich.	2,500,000	100,000	25	*	.....	700,000	April. 1896 .50
11	Bald Butte.	Mont.	250,000	250,000	1	*	.....	475,000	Feb.. 1897 .02
12	Bangkok-Cora Bell, s. l.	Colo..	600,000	600,000	1	.....	.....	107,510	July.. 1896 .01
13	Bates Hunter, g. s.	Colo.	1,000,000	1,000,000	1	*	.....	67,500	Dec.. 1891 .00¾
14	Belden, F. E., m.	N. H.	500,000	100,000	5	*	.....	217,000	Jan .. 1896 .04
15	Big Six, g. s.	Colo..	500,000	500,000	1	.....	.....	2,500	May.. 1896 .00½
16	Bi-Metallic, g. s.	Mont.	5,000,000	200,000	25	*	.....	1,630,000	June. 1893 .10
17	Boston & M. Cons., g.s.c	Mont.	3,750,000	150,000	25	*	.....	5,825,000	May.. 1897 3.00
18	Brotherton, i.	Mich.	2,000,000	80,000	25	*	.....	120,000	Mar.. 1893 .50
19	Bullion, Beck & Champ.	Utah.	1,000,000	100,000	10	*	.....	2,117,000	Mar.. 1897 .50
20	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	.....	.....	48,850,000	April. 1897 5.00
21	Cariboo.	B.C..	800,000	800,000	1	.....	.....	140,965	Mar.. 1897 .02
22	Centen'l-Eureka, g.s.l.c	Utah.	1,500,000	30,000	50	30,000	Mar.. 1889 1.00	1,950,000	Mar.. 1897 1.00
23	Central, c.	Mich.	500,000	20,000	25	100,000	Oct.. 1861 .65	1,970,000	Feb.. 1891 1.00
24	Charleston, p. r.	S. C..	1,000,000	10,000	100	*	.....	150,000	Feb.. 1897 1.00
25	Clay County, g. s. c.	Colo..	60,000	60,000	1	*	.....	52,000	Nov.. 1891 .02
26	C. O. D., g.	Colo..	500,000	500,000	1	*	.....	25,000	Mar.. 1896 .01
27	Cœur d'Alene, s. l.	Idaho	5,000,000	500,000	10	.....	.....	340,000	June. 1893 .06
28	‡Cons. Cal. & Va., g. s.	Nev..	21,600,000	216,000	100	5,014,130	April. 1897 .25	3,898,800	Feb.. 1895 .25
29	Cons. New York, g. s.	Nev..	10,000,000	100,000	100	168,000	Jan .. 1896 .05	10,000	Feb.. 1893 .10
30	Coptis, g. s.	Nev..	10,000,000	100,000	100	.....	.....	77,000	Feb.. 1895 .01
31	Cortez, Ltd., s. g.	Nev..	1,500,000	300,000	5	.....	.....	735,000	Feb.. 1893 .15
32	Dalton & Lark, s. l.	Utah.	2,500,000	2,500,000	1	.....	.....	87,500	Aug.. 1896 .00½
33	Daly, s. l.	Utah.	3,000,000	150,000	20	.....	.....	2,925,000	Mar.. 1897 .25
34	†Deadwood-Terra, g.	S. D..	5,000,000	200,000	25	*	.....	1,240,000	Aug.. 1896 .50
35	De Lamar, g. s.	Idaho	2,000,000	400,000	5	*	.....	2,250,000	Oct.. 1896 .25
36	Derbec Blue Gravel, g.	Cal ..	10,000,000	100,000	100	110,000	June. 1893 .10	280,000	Aug.. 1891 .10
37	Dexter, g. s.	Nev..	1,000,000	100,000	10	8,000	June. 1892 .08	100,000	Aug.. 1893 .33
38	Elkhorn, s.	Mont.	1,000,000	200,000	5	.....	.....	1,212,000	June. 1895 .06
39	Elkton Cons., g.	Colo..	1,250,000	1,250,000	1	.....	.....	231,960	Mar.. 1897 .02
40	Enterprise, g. s.	Colo..	2,500,000	500,000	5	*	.....	825,000	May.. 1893 .25
41	Eureka Cons., g. s. l.	Nev..	1,000,000	50,000	20	567,500	Feb.. 1897 .25	5,112,500	Jan .. 1892 .25
42	Evening Star, s. l.	Colo.	500,000	50,000	10	*	.....	1,437,500	Dec.. 1889 .25
43	Florence, s.	Mont.	2,500,000	500,000	5	*	.....	125,318	Mar.. 1897 .01
44	Franklin, c.	Mich.	1,000,000	40,000	25	.....	.....	1,240,000	Jan .. 1894 2.00
45	Galena, g. s. l.	Utah.	1,000,000	100,000	10	.....	.....	71,000	Jan .. 1897 .05
46	Garfield-Grouse, g.	Colo..	1,200,000	1,200,000	1	*	.....	24,000	Dec.. 1896 .01
47	Gold Coin, g. s.	Colo..	1,000,000	200,000	5	*	.....	120,000	Feb.. 1897 .10
48	Golden Eagle, g.	Colo..	1,000,000	1,000,000	1	*	.....	10,000	Sept.. 1896 .01
49	Golden Fleece, g. s.	Colo..	600,000	600,000	1	*	.....	569,179	Feb.. 1897 .01
50	Gold & Globe, g.	Colo..	750,000	750,000	1	.....	.....	36,000	Aug.. 1896 .00⅝
51	Gold Rock, g. s. c.	Colo..	500,000	500,000	1	*	.....	28,750	Dec.. 1891 .01
52	Granite Mountain, g. s.	Mont.	10,000,000	400,000	25	*	.....	12,120,000	July.. 1892 .20
53	Granite, s. l.	Idaho	500,000	200,000	2.50	*	.....	83,400	Nov.. 1890 .10
54	Gt. West'n Quicksilv., q.	Cal ..	5,000,000	50,000	100	.....	.....	388,366	Nov.. 1893 .10
55	Harquahala, g.	Ariz..	1,500,000	300,000	5	.....	.....	126,000	Nov.. 1894 .12
56	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*	.....	2,175,000	Feb.. 1897 .50
57	Helena & Frisco, s. l.	Idaho	2,500,000	500,000	5	*	.....	475,000	Aug.. 1896 .04
58	Holmes, s.	Nev..	10,000,000	100,000	100	345,000	Mar.. 1890 .25	75,000	April. 1892 .25
59	Homestake, g.	S. D..	12,500,000	125,000	100	200,000	July.. 1878 1.00	6,181,250	Mar.. 1897 .25
60	Hope, s.	Mont.	1,000,000	100,000	10	*	.....	672,252	Mar.. 1897 .10
61	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*	.....	5,130,000	Jan .. 1896 .12½
62	Iowa.	Colo..	1,000,000	1,000,000	1	.....	.....	65,000	Feb.. 1897 .00½
63	Iron Mountain, s. l.	Mont.	5,000,000	500,000	10	*	.....	492,500	Nov.. 1896 .06
64	Iron Silver, s. l.	Colo..	10,000,000	500,000	20	*	.....	2,500,000	April. 1889 .20
65	Isabella, g.	Colo..	2,250,000	2,250,000	1	.....	.....	258,750	Mar.. 1897 .02½
66	Jack Rabbit, g.	Cal ..	10,000,000	100,000	100	118,000	April. 1894 .02	260,000	April. 1891 .10
67	Jay Hawk, g.	Mont.	1,425,000	285,000	5	.....	.....	33,375	Dec.. 1892 .12
68	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct.. 1887 1.00	120,000	Dec.. 1895 1.00
69	Kennedy, g.	Cal ..	10,000,000	100,000	100	.....	.....	1,796,000	Aug.. 1895 .48
70	Leadville Cons., s. l.	Colo..	4,000,000	400,000	10	*	.....	316,000	Feb.. 1893 .03
71	Little Chief, s. l. i-o.	Colo..	10,000,000	200,000	50	*	.....	820,000	Dec.. 1890 .05
72	Maid of Erin, g. s. c. l.	Colo..	3,000,000	600,000	5	*	.....	740,000	Nov.. 1895 .02
73	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*	.....	1,150,000	Nov.. 1896 .05
74	Mayflower Gravel, g.	Cal ..	1,200,000	60,000	20	.....	.....	166,897	Dec.. 1895 .10
75	May-Mazeppa Con., l. s.	Colo..	1,000,000	1,000,000	1	*	.....	170,000	Oct.. 1891 .03¾
76	Mercur, g.	Utah.	5,000,000	200,000	25	*	.....	650,000	Mar.. 1897 .12½
77	Minnesota Iron, i.	Minn.	16,500,000	165,000	100	*	.....	3,240,009	July.. 1896 1.50
78	Mollie Gibson, s.	Colo..	5,000,000	1,000,000	5	20,000	Jan .. 1891 .02	4,080,000	Jan .. 1895 .05
79	Monitor, g.	S. D..	2,500,000	250,000	10	.....	.....	45,000	Oct.. 1890 .03
80	Montana. Ltd., g. s.	Mont.	8,300,000	660,000	5	*	.....	2,890 637	Oct.. 1895 .06¾
81	Montana Ore Purchas'g	Mont.	1,000,000	40,000	25	*	.....	560,000	April. 1897 1.00
82	Moon Anchor Gold.	.....	600,000	600,000	1	*	.....	24,000	July.. 1896 .01
83	Moose, g.	Colo..	600,000	600,000	1	.....	.....	186,000	Jan .. 1896 .01
84	Morning Star Cons., s. l.	Colo..	1,000,000	100,000	10	*	.....	1,025,000	Dec.. 1891 .25
85	Mt. Diablo, s.	Nev..	5,000,000	50,000	100	145,000	Nov.. 1896 .10	225,000	Aug.. 1893 .25
86	Mt. McClellan, g. s. l.	Colo..	1,250,000	250,000	5	*	.....	21,936	June. 1891 .03
87	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1	.....	.....	30,000	Oct.. 1896 .00½
88	Napa, q.	Cal ..	700,000	100,000	7	*	.....	833,000	April. 1897 .10
89	New Elkhorn.	Colo..	1,500,000	300,000	5	.....	.....	72,000	Sept.. 1896 .24
90	New Guston, g. s. c.	Colo.	550,000	110,000	5	*	.....	1,198,120	Oct.. 1892 .25
91	New Hoover Hill, g.	N. C..	300,000	120,000	2.50	*	.....	22,500	Dec.. 1885 .20
92	N. Y. & Hon. Rosario, s. g.	C. A..	1,500,000	150,000	10	*	.....	727,500	Mar.. 1897 .10
93	North Banner, g. s.	Cal ..	1,000,000	100,000	10	21,794	Oct.. 1896 .02	20,000	July.. 1891 .05
94	North Com'wealth, s.	Nev..	10,000,000	100,000	100	85,000	April. 1890 .25	25,000	June. 1891 .25
95	North Star, g.	Cal ..	2,000,000	200,000	10	20,000	June. 1885 .02	450,000	June. 1893 .50
96	Nugget, g.	Colo..	1,000,000	1,000,000	1	*	.....	10,000	Jan .. 1895 .00½
97	Ontario, s. l.	Utah.	15,000,000	150,000	100	.....	.....	13,400,000	Mar.. 1897 .10
98	Osceola, c.	Mich.	1,250,000	50,000	25	*	.....	2,122 500	Feb.. 1897 1.00
99	Pacific Coast Borax, b.	Cal ..	2,000,000	20,000	100	.....	.....	422,500	July.. 1893 1.00
100	Parrot, c.	Mont.	2,300,000	230,000	10	*	.....	1,622,215	June. 1894 .65
101	Petro, s.	Utah.	1,000,000	10,000	100	.....	.....	17,500	July.. 1891 .75
102	Pharmacist, g.	Colo..	1,200,000	1,200,000	1	.....	.....	80,000	Jan .. 1893 .01
103	Portland, g.	Colo..	3,000,000	3,000,000	1	*	.....	953,000	Mar.. 1897 .01
104	Quicksilver, pref., q.	Cal ..	4,300,000	43,000	100	*	.....	1,823,911	June. 1891 1.25
105	" com., q.	Cal ..	5,700,000	57,000	100	*	.....	643,867	July.. 1882 .40
106	¶Quincy, c.	Mich.	2,500,000	100,000	25	*	.....	9,070,000	Feb.. 1897 8.00
107	Reed National, s.	Colo..	500,000	500,000	1	*	.....	45,000	Dec.. 1890 .01
108	Robinson Cons., s. l.	Colo..	10,000,000	200,000	50	*	.....	585,000	Mar.. 1886 .05
109	Running Lode, g. s. l.	Colo..	1,000,000	1,000,000	1	*	.....	27,000	June. 1893 .00½
110	St. Joseph, l.	Mo..	2,500,000	250,000	10	.....	.....	2,524,000	Dec.. 1895 .25
111	Silent Friend, g. s. l.	Colo..	500,000	500,000	1	*	.....	60,000	Aug.. 1891 .25
112	Silver King, s.	Ariz..	10,000,000	100,000	100	272,858	Mar.. 1897 .25	1,950,000	July.. 1887 .25
113	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	3,000	Jan .. 1897 .02	975,000	Mar.. 1897 .25
114	Silver Mg. of L. V., s.	N. M.	500,000	500,000	1	*	.....	300,137	Dec.. 1891 .04
115	Small Hopes, s.	Colo..	5,000,000	250,000	20	*	.....	3,275,000	Mar.. 1896 .10
116	‖Smuggler Union, g. s.	Colo..	5,000,000	50,000	100	.....	.....	150,000	Oct.. 1896 1.00
117	§Standard Cons., g. s.	Cal ..	20,000,000	200,000	100	.....	.....	3,737,868	Mar.. 1897 .10
118	Swansea, g. s. l.	Colo..	600,000	60,000	10	*	.....	30,000	Sept.. 1892 .10
119	Tamarack, c.	Mich.	1,250,000	50,000	25	.....	.....	4,770,000	Dec.. 1896 3.00
120	Teal & Poe, s. l.	N. M.	150,000	150,000	1	*	.....	9,000	Nov.. 1891 .01½
121	Tom Boy, g.	Colo..	2,000,000	200,000	10	*	.....	410,000	Mar.. 1896 .20
122	Trinity River, g.	Cal ..	500,000	500,000	1	*	.....	15,000	July.. 1893 .00½
123	United Verde, c.	Ariz..	3,000,000	300,000	10	*	.....	562,500	Dec.. 1893 .25
124	Union, g.	Colo..	1,250,000	1,250,000	1	.....	.....	73,000	June. 1896 .01
125	Union Leasing.	Colo..	500,000	500,000	1	*	.....	340,000	July.. 1895 .04
126	Utah.	Utah.	1,000,000	100,000	10	*	.....	175,000	Feb.. 1897 .02
127	Victor, g.	Colo..	1,000,000	200,000	5	*	.....	765,000	Mar.. 1897 .10
128	War Eagle	B.C..	500,000	500,000	1	32,500	Dec.. 1894	187,000	Oct.. 1896 .06
129	Woodside.	Utah.	1,000,000	100,000	10	.....	.....	25,000	Oct.. 1889 .25
130	Yankee Girl, s.	Colo..	1,300,000	260,000	5	.....	.....	520,000	July.. 1891 .25

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov.. 1895 .01½
2	Ajax, g.	Colo..	1,000,000	1,000,000	1	.....	.....
3	Alamo, g.	Colo..	1,000,000	1,000,000	1	.....	.....
4	Alice, g. s. c.	Colo..	5,000,000	5,000,000	1	*	.....
5	Alliance, g. s. l.	Utah.	100,000	100,000	1	200,000	Dec.. 1895 .10
6	Allouez, c.	Mich.	2,000,000	80,000	25	1,440,937	June. 1894 .20
7	Alpha Cons., g. s.	Nev..	10,500,000	105,000	100	262,750	April. 1897 .05
8	Alta, s.	Nev..	10,080,000	108,000	100	3,595,960	April. 1897 .05
9	American, c.	Idaho	5,000,000	500,000	10	*	.....
10	American Belle, g.s.c.	Colo..	2,000,000	400,000	5	*	.....
11	Anaconda, g.	Colo..	5,000,000	1,000,000	5	.....	.....
12	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug.. 1893 .20
13	Aola, g.	Colo..	1,000,000	1,000,000	1	*	.....
14	Argonaut Cons., g. s.	Colo..	1,000,000	1,000,000	1	*	.....
15	Atlantic Cable Cons.	Colo..	1,500,000	1,500,000	1	*	.....
16	Bahama, g.	S. D..	1,250,000	250,000	5	8,125	Sept.. 1893 .00¼
17	Bankers, g.	Colo..	1,250,000	1,250,000	1	*	.....
18	Belcher, s. g.	Nev..	10,400,000	104,000	100	3,338,420	April. 1897 .25
19	Belle Isle.	Nev..	10,000,000	100,000	100	240,271	July.. 1896 .10
20	Ben Hur, g.	Colo..	900,000	900,000	1	.....	.....
21	Blue Bell, g.	Colo..	500,000	500,000	1	*	.....
22	Blue Jay Cons., s. l.	Utah.	2,000,000	400,000	5	4,750	July.. 1893 .004
23	Bob Lee, g.	Colo..	1,200,000	1,200,000	1	*	.....
24	Bullion, s. g.	Nev..	1,000,000	100,000	100	3,040,000	Feb.. 1897 .10
25	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10	.....	.....
26	Burlington, g. s.	Cal..	10,000,000	100,000	100	3,000	May.. 1896 .03
27	Buskhorn, g.	Colo..	900,000	900,000	1	.....	.....
28	Butte Queen, g.	Cal..	1,000,000	100,000	10	16,000	Feb.. 1893 .10
29	Calumet, g.	Colo..	1,400,000	1,400,000	1	*	.....
30	Central Lead, l.	Mo..	400,000	4,000	100	*	.....
31	Central North Star, g.	Cal..	1,000,000	100,000	10	10,000	July.. 1893 .10
32	Challenge, s, g.	Nev..	5,000,000	50,000	100	300 000	Nov.. 1896 .10
33	Chollar, g. s.	Nev..	11,200,000	112,000	100	2,021,600	July.. 1896 .25
34	Chrysolite, s. l.	Colo..	10,000,000	200,000	50	*	.....
35	Cleveland Cliffs, l.	Mich.	5,000,000	50,000	100	*	.....
36	Columbine, g.	Colo..	1,000,000	1,000,000	1	*	.....
37	Confidence, g. s.	Nev..	2,496,000	24,960	100	1,636,974	Sept.. 1896 .30
38	Cons. Imperial, g. s.	Nev..	5,000,000	50,000	100	2,082,500	Mar.. 1897 .01
39	Copper Mountain, g.	Colo.	1,000,000	1,000,000	1	*	.....
40	Creede & C. C., g.	Colo..	800,000	800,000	1	.....	.....
41	CrippleCreekCons., g.	Colo..	2,000,000	2,000,000	1	.....	.....
42	Crip.Cr'k Gold Expl'n	Colo..	1,800,000	1,800,000	1	.....	.....
43	Dante, g.	Colo..	1,250,000	1,250,000	1	*	.....
44	Denver City, s.	Colo..	5,000,000	500,000	10	*	.....
45	Denver Gold, g.	Colo..	300,000	60,000	5	.....	.....
46	Dickens-Custer, g. s..	Colo..	2,100,000	420,000	5	.....	.....
47	Enterprise, g.	Colo..	800,000	800,000	1	.....	.....
48	Eureka Con. Drift, g.	Cal..	500,000	500,000	1	115,000	Feb.. 1897 .05
49	Exchequer, g. s.	Nev..	10,000,000	100,000	100	725,000	Dec.. 1896 .05
50	Favorite, g.	Colo..	1,200,000	1,200,000	1	*	.....
51	Fortunatus, g. s.	Colo..	100,000	100,000	1	*	.....
52	Found Treasure, g. s.	Nev..	10,000,000	100,000	100	55,770	Jan .. 1892 .50
53	Franklin Gold, g.	Colo..	1,000,000	1,000,000	1	*	.....
54	Free Coinage. g.	Colo..	1,000,000	1,000,000	1	*	.....
55	Galena, l. s.	Idaho	500,000	500,000	1	.....	.....
56	Garden City, g.	S. D..	2,500,000	250,000	10	2,898	Sept.. 1891 .00½
57	Gem, g.	Cal..	10,000,000	100,000	100	.....	.....
58	Gold Belt, g. s.	Utah.	500,000	500,000	1	3,012	July.. 1896 .00½
59	Golden Age, g.	Colo..	1,000,000	1,000,000	1	*	.....
60	Golden Dale, g.	Colo..	2,000,000	2,000,000	1	*	.....
61	Golden Fleece Grav. g	Cal..	130,000	130	1000	56,260	Mar.. 1897 2.00
62	Gold Flat, g.	Cal..	1,000,000	100,000	10	13,000	Aug.. 1893 .03
63	Gold King, g.	Colo..	1,000,000	1,000,000	1	*	.....
64	Gold Rock, g.	Colo..	1,000,000	1,000,000	1	*	.....
65	Gold Standard, g.	Colo..	1,000,000	1,000,000	1	*	.....
66	Gould & Curry.	Nev..	10,800,000	108,000	100	4,850,400	Jan .. 1897 .15
67	Hale & Norcross, g. s.	Nev..	11,200,000	112,000	100	5,798,000	April. 1897 .10
68	Hartshorn, g. s.	S. D..	1,250,000	250,000	5	8,750	Sept.. 1891 .00½
69	Head Cent. & Tr., g.s.	Ariz..	2,000,000	200,000	10	22,824	Mar.. 1892 .03
70	Hidden Treas., g. s.	Cal..	20,000	20,000	1	1,000	Nov.. 1893 .05
71	Himalaya, s. l.	Utah.	1,800,000	180,000	10	10,000	Oct.. 1892 .01
72	Idaho Co., Ltd., g.	Idaho	100,000	1,000	100	*	.....
73	Idlewild, g.	Cal..	1,000,000	100,000	10	*	.....
74	Inez, s. l.	Idaho	1,000,000	1,000,000	1	*	.....
75	Jack Pot, g.	Colo..	1,250,000	1,250,000	1	.....	.....
76	Jackson, l.	Mich.	300,000	12,000	25	*	.....
77	Justice, g. s. c.	Colo..	500,000	500,000	1	*	.....
78	Keystone, g.	Colo..	1,500,000	1,500,000	1	*	.....
79	Kingman Silver, g. s.	Ariz..	10,000,000	100,000	100	5,000	Sept.. 1891 .05
80	Lacrosse, g.	Colo..	1,000,000	100,000	10	*	.....
81	Lottie Gibson, g.	Colo..	1,000,000	1,000,000	1	.....	.....
82	Matoa, g.	Colo..	5,000,000	1,000,000	5	.....	.....
83	Mayflower, g.	Colo..	1,000,000	1,000,000	1	*	.....
84	Mexican, g. s.	Nev..	10,080,000	100,800	100	3,104,240	April. 1897 .20
85	Michigan Gold., g. s.	Mich.	2,500,000	100,000	25	40,000	Mar.. 1892 .10
86	Milwaukee, s. l.	Idaho	500,000	500,000	1	.....	.....
87	Modoc Chief, g. s. l.	Idaho	1,000,000	200,000	5	4,375	Jan .. 1892 .00½
88	Monarch, g.	Colo..	1,000,000	1,000,000	1	.....	.....
89	Mutual, g.	Colo..	500,000	500,000	1	.....	.....
90	Neath, g.	Colo.	1,000,000	100,000	10	.....	.....
91	New Gold Hill.	N. C..	1,750,000	350,000	5	.....	.....
92	New Viola, s. l.	Idaho	750,000	150,000	5	*	.....
93	North Belle Isle, s.	Nev..	10,000,000	100,000	100	523,074	July.. 1896 .10
94	Occidental Cons., g. s.	Nev..	10,000,000	100,000	100	463,652	Mar.. 1897 .10
95	Original Keystone, s.	Nev..	10,000,000	100,000	100	250,000	Mar.. 1892 .10
96	Oro Cache, g. s.	S. D..	1,250,000	250,000	5	6,250	July.. 1893 .00½
97	Orphal Bell, g.	Colo..	1,000,000	1,000,000	1	.....	.....
98	Overman Silver, g. s.	Nev..	1,152,000	115,200	100	4,188,560	Dec.. 1896 .10
99	Pappoose, g.	Colo..	2,000,000	2,000,000	1	*	.....
100	Peer, s.	Ariz..	10,000,000	100,000	100	215,000	July.. 1894 .05
101	Peerless, s.	Nev..	10,000,000	100,000	100	410,000	July.. 1894 .05
102	Pine Hill, g.	Cal ..	1,000,000	100,000	10	25,000	Jan .. 1897 .05
103	Pioche Con., g. s. l.	Nev..	20,000,000	2,000,000	10	*	.....
104	Potosi, g. s.	Nev..	11,200,000	112,000	100	2,044,000	April. 1897 .20
105	Princess, g.	Colo..	1,000,000	1,000,000	1	.....	.....
106	Puritan, g, s.	Colo..	1,500,000	150,000	10	*	.....
107	Quincy, c.	Colo..	3,000,000	300,000	10	.....	.....
108	Red Mountain, s.	Colo..	300,000	60,000	5	22,500	Mar.. 1891 .12½
109	Ruby & Dun., g. s. l.	Nev..	25,300	506	25	*	.....
110	St. Mary, c.	Mich.	1,000,000	40,000	25	4,000	July.. 1895 .05
111	Savage, g. s.	Nev..	11,200,000	112,000	100	1,051,400	Jan .. 1897 .20
112	Seg. Belcher & M., g.s.	Nev..	10,000,000	100,000	100	340,000	Nov.. 1896 .10
113	Silver Age, g. s. l.	Colo..	2,000,000	200,000	10	*	.....
114	Silver Hill, s.	Nev..	10,800,000	108,000	100	1,992,600	July.. 1894 .05
115	Silver Queen, c.	Ariz..	5,000,000	200,000	25	*	.....
116	Silver State, g.	Colo..	700,000	700,000	1	*	.....
117	Siskiyou Con., s.	Cal ..	2,000,000	200,000	10	44,000	June. 1896 .01
118	Specimen, g.	Colo..	1,200,000	1,200,000	1	.....	.....
119	Tembnj, g.	Colo..	1,000,000	1,000,000	1	.....	.....
120	Tombstone, g. s. l.	Ariz..	12,500,000	500,000	25	*	.....
121	Tornado Con., g. s.	Nev..	100,000	100,000	1	*	.....
122	Union Con., g. s.	Nev..	10,000,000	100,000	100	2,545,000	Sept.. 1896 .20
123	Utah Cons., s.	Nev..	10,000,000	100,000	100	420,722	Feb.. 1897 .05
124	Victory, g. s.	S. D..	1,250,000	250,000	5	2,625	Nov.. 1896 .00½
125	Virginia M. Cons., g.	Colo..	1,000,000	1,000,000	1	*	.....
126	Waterloo, g. s.	Cal..	2,000,000	200,000	10	30,000	Aug.. 1893 .15
127	West Granite Mt., s.	Mont.	500,000	100,000	5	.....	.....
128	Whale, g. s. l.	Colo..	500,000	500,000	1	*	.....
129	Work, g.	Colo..	1,250,000	1,250,000	1	.....	.....
130	World, g.	Colo..	1,500,000	1,500,000	1	*	.....

G., Gold. S., Silver. L.,